VOLUME 49, NUMBER 2 February 1957

JOURNAL OF Home Economics

WOMANPOWER AND THE AMERICAN ECONOMY
by Roland R. Renne

TEACHING IN A FOREIGN LAND
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THE LIFE CYCLE AND ITS DIET
by Helen A. Hunscher, Ruth M. Leverton, and Dena Coderquist

MEET ME IN ST. LOUIS
by Edna Kraft James

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JOURNAL OF *Home Economics*

OFFICIAL ORGAN OF THE AMERICAN HOME ECONOMICS ASSOCIATION

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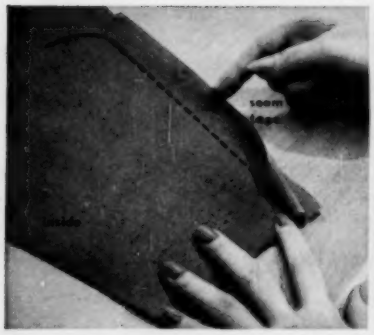
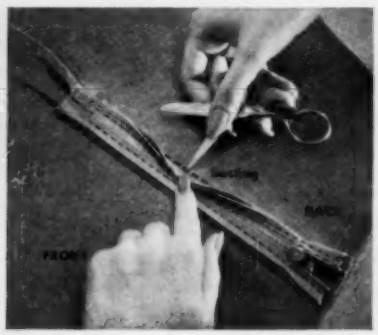


Preparation: Check opening—length should equal metal part of zipper with tab UP, plus waist seam-allowance. Machine-baste opening together. Widen front seam-allowance by topstitching seam-tape to it. (Do all stitching inside, from *bottom to top*.) Press seam open.

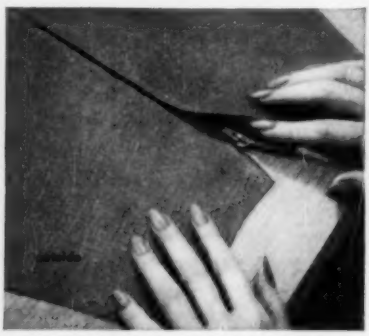
1. Stitch* zipper to back seam-allowance. Put zipper in place face-down, with full width of chain on back seam-allowance, and edge of chain along seam line. Stitch—with edge of regular presser foot against chain. Check position every 2″ or 3″.

2. Topstitch back seam-allowance Change to zipper foot. Turn *zipper* right side up, folding seam-allowance close to zipper chain. Topstitch fold close to chain, continuing to end of zipper-tape.

3. Stitch zipper to skirt front. Arrange skirt with zipper face-down over front seam-allowance, forming a pleat at placket-end. Stitch, through all thicknesses, from seam line across bottom, then along zipper close to chain, continuing to end of tape.



Finishing: Press placket on wrong side. Remove machine-basting, clipping every few inches if necessary. Press placket on right side. Coats & Clark's Skirt Zippers have the jamless Rocking Slider that releases fabric if caught—just push slider back.



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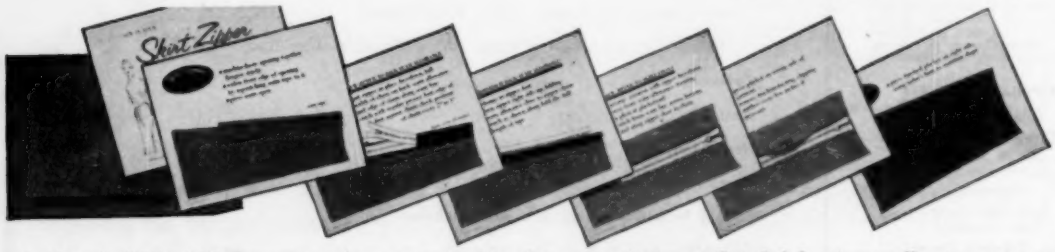

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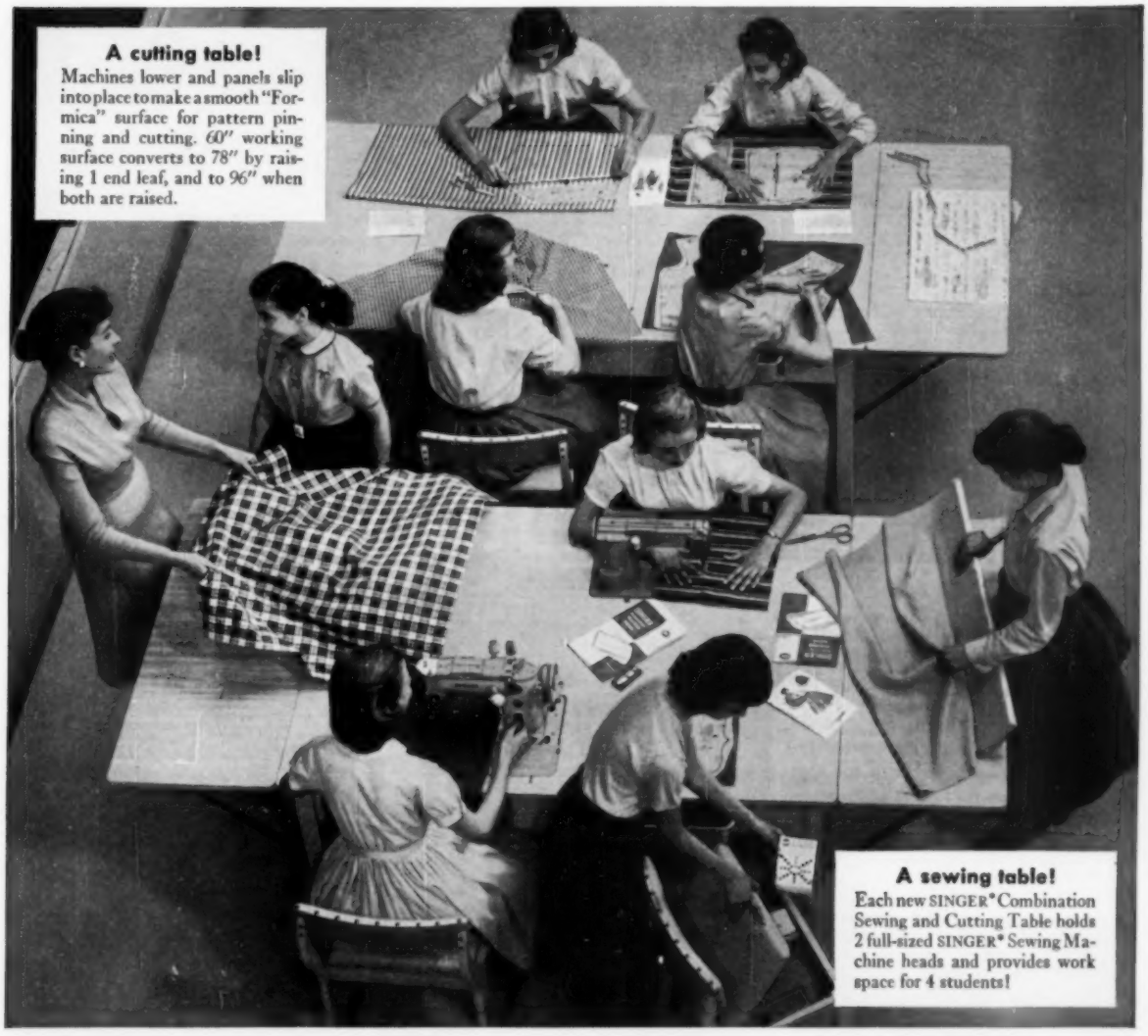
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An old favorite, translated into a delightful dish for tots with teeth. Peas and ham offer a good source of vegetable and meat proteins. Carrots and potatoes add further flavor interest.

4 EGG YOLKS & HAM

These two popular foods now specially combined for small fry. Rich in complete proteins, and an excellent source of vitamin A and iron. Also Strained for younger babies.

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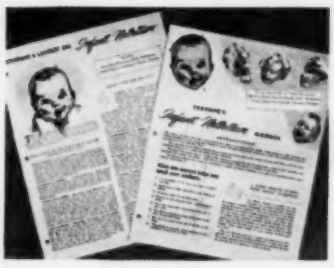

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to pancake batter! Have a new kind of fun cake!

Breakfast plays an important part in the well-rounded daily menu. And here's a different breakfast dish to stimulate your future homemakers' interest in the morning meal. It's a new kind of pancake with subtle, mellow banana flavor . . . a richer, fluffy texture.

Banana pancakes, topped with banana funny faces, make the kind of breakfast children love—fun to eat, substantially nourishing. With or without the extra banana trim, these pancakes make an ideal adult breakfast. Why not have a breakfast lesson that features banana pancakes, soon!

BANANA PANCAKES

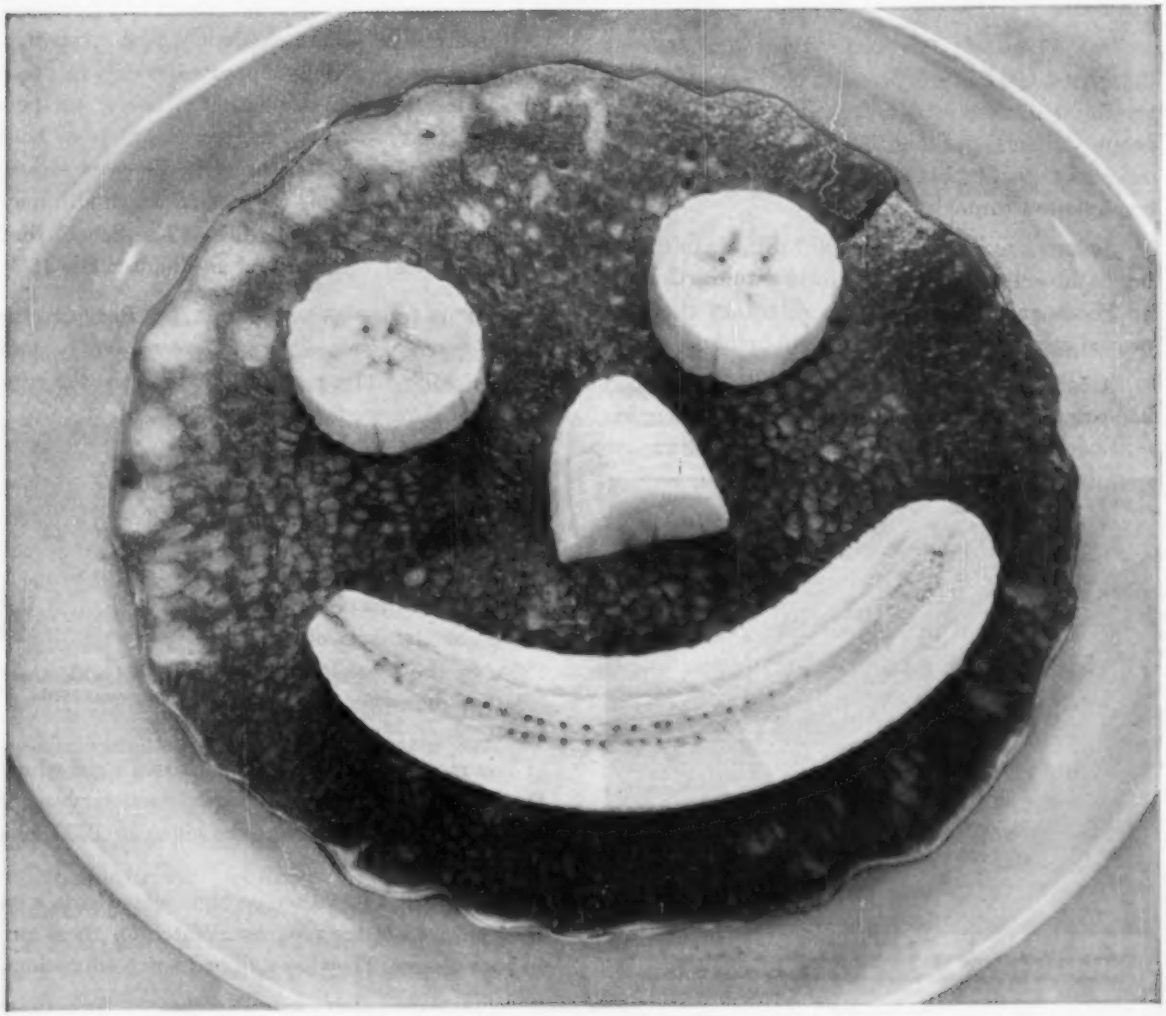
Use your favorite packaged pancake mix, following package directions for four servings. Fold in 1 cup finely diced ripe bananas* after batter has been mixed. Cook according to package directions.

**Use fully ripe banana . . . yellow peel flecked with brown.*

Funny-Face Trim

Slice banana lengthwise. Use half banana for mouth. Use banana crosswise slices for eyes, banana tip for nose.

UNITED FRUIT COMPANY



Education Is Another "Product" of General Mills

As a citizen of the United States (a corporate citizen) General Mills feels it has responsibilities above and beyond its products. It was founded on this belief.

One of its founders said: "Education satisfies the mental and cultural needs . . . business and industry fulfill the material needs . . . of the American people." He also felt that the two should be connected closely. And it is this precept that this company has followed through the years.

As long ago as 1931, General Mills began checking its advertising of food products with the Council on Foods and Nutrition. This voluntary checking proved stimulating, and extremely helpful.

A further example of General Mills' interest in education is the company's Nutrition Education Program. Recognizing the high importance of nutritional education, we began 13 years ago to work earnestly in this direction.

Classroom materials were created and furnished for three million school children a year. Nutrition Workshops were partially supported by General Mills for summer teachers' courses in colleges and universities. Sixty-one of these workshops were held in some twenty-three states over a six-year period.

Two nutrition films were made which still may be secured from General Mills: "The School that Learned to Eat," and "Food as Children See It."

A "First" in Education by Industry. *The Betty Crocker Search for the Homemaker of Tomorrow.* Why does General Mills feel a responsibility toward the education of Americans? Because this changing world needs all the help that all of us can give, in creating happy homes, social stability, moral responsibility. General Mills wants to do its share. From this point, we focused our attention, starting in 1954, on the teenage girl. The "Betty Crocker Search" was the result.

Betty Crocker of General Mills

You may have in one of your classes a girl who is there on a Betty Crocker Search scholarship; 48 scholarships for $1500.00 were given in 1956, plus one for $5000.00.

This year 300,526 senior high school girls have been enrolled in the program. Watch for these girls in your classes. They have all had a rich educational

1956 Betty Crocker Search top scholarship winner Sandra Walton, San Rafael, California and her high school home economics teacher Wylma Cunningham.

744,523 High School Seniors have taken the stimulating and informative Betty Crocker Search examination since 1954.

experience in the area of home and family living. Their participation in the program indicates a healthy interest in the subject of homemaking.

Yes, General Mills believes in education of Americans. Yes, General Mills is doing something about it!

Assistance to Teachers. Currently offered to high school Home Economics teachers are the newly developed "packages" of classroom teaching helps. Typical is the Betty Crocker "All About Pie" kit. The complete kit consists of filmstrip, illustrated booklet and individual score cards.

The color filmstrip, "All About Pie" is a step-by-step visual on pie making. The entire strip was filmed in the Betty Crocker Kitchens, and can be borrowed without charge, with a script for the instructor's use in narration.

The illustrated "All About Pie" booklet, offered without charge, is a 16-page manual covering the accepted pastry mixing methods: Standard, Stir-N-Roll and Packaged Mix. 48 Step pictures and 23 recipes are included. And an unlimited number of score cards are available to the teachers for students' individual use. The score card helps students to judge and score any pastry. This "package" of teaching aids is the first of a series of similar kits to be offered to the home economics profession.

New This Year. *The "Giant Step."* Any large company can buy a television program. But General Mills has launched a new TV Quiz Program on CBS which will help many young Americans go to college. (Consult your newspaper for date and time). Specifically worthy youngsters from seven to seventeen can win a complete college education.

"BUSINESS HAS RESPONSIBILITIES TO THE COMMUNITY ABOVE AND BEYOND PRODUCTS AND SERVICES . . . AND EDUCATION IS THE MOST IMPORTANT RESPONSIBILITY OF THEM ALL!"

General Mills

Washington News

• **The Association's proposal for a federal Research Institute for the American Home** is gaining support from other organizations and interest from legislators.

Official action has already been taken in support of the proposal by the Family Service Association of America and the American Vocational Association. Both endorse the idea and promise continued interest in its objectives.

The FSAA, an organization including outstanding lay and professional persons in the family welfare field, authorized its executive committee to appoint representatives to counsel with AHEA and other organizations on development connected with the Institute proposal.

At its annual meeting in St. Louis, the House of Delegates of the educational American Vocational Association resolved

that the AVA endorse and support the establishment of an independent agency within the Federal Government to be known as the Research Institute for the American Home, a function of which shall be to give leadership to the stimulation, development and co-ordination of research programs significant to home and family life.

Members of the AHEA's committee on federal research related to home economics and other Association members who have been in touch with members of both houses of the new Congress feel confident that legislation to establish the Institute will be drafted and presented to the Congress early in this session.

All AHEA members can write to their representatives in Congress alerting them to this forthcoming legislation and urging their support for the Research Institute.

• **President Eisenhower,** in his State of the Union message to the 85th Congress on January 10, emphasized the principles on which this nation is founded and our relationships to other nations of the world, based on these principles:

A vigilant regard for human liberty.
A wise concern for human welfare.
A ceaseless effort for human progress.

Inflation. The President urged "a vigilant guard against the inflationary tendencies that are always at work in a dynamic economy operating at today's high levels."

Financial institutions. The President proposed that the Congress authorize a Commission to undertake a broad national inquiry into "the nature, performance, and adequacy of our financial system." Legislative proposals could result from its findings.

Water. Emphasizing that water is "rapidly becoming our most precious natural resource," the President said that steps must be taken for "fully productive use of water and protection against disastrous flood." Municipalities, states, and federal government must co-operate.

School construction. The President said:

High priority should be given the school construction bill. This will benefit children of all races throughout the country —and children of all races need schools now. A program designed to meet emergency needs for more classrooms should be enacted without delay. I am hopeful that their program can be enacted on its own merits, uncomplicated by provisions dealing with the complex problems of integration. I urge the people in all sections of the country to approach these problems with calm and reason, with mutual understanding and good will, and in the American tradition of deep respect for the orderly processes of law and justice.

Health, education, and welfare. Proposals for legislation in these areas are to come in future messages from the Administration to Congress, the President said.

International relations. A large part of the State of the Union message dealt with international relations and efforts to insure the peace of the world by applying the principles on which our nation is founded to international relationships.

• **Representatives of 30 national organizations** met in Washington, D. C., on December 20, 1956, at the invitation of the National Education Association, to discuss the problems and prospects of federal school construction legislation in this session of Congress. Congressmen Perkins, Democrat from Kentucky, and John Rhodes, Republican from Arizona, spoke briefly and answered questions. Various delegates presented the aims and points of view of individual organizations. General conclusions of the discussion were that there must be unified bi-partisan effort to achieve the passage of a bill, interested groups must continue to co-operate whenever and wherever possible, and the greatest impetus must come from the local or grass root level. What are you doing in your community to help?

VOLUME 49, NUMBER 2, FEBRUARY 1957

JOURNAL OF *Home Economics*

Womanpower and the American Economy

Roland R. Renne[1]

Dr. Renne is president of Montana State College at Bozeman, Montana, and is a member of the National Manpower Council. He has served on many other regional and national commissions, particularly in the field of economics and conservation of resources.

THERE are some 21 million women in paid employment in the United States today. This is more than a third of all women 14 years of age and over (approximately 35 per cent) and about a third of the total United States labor force (about 32 per cent). The employment of women has contributed to increase our national output of goods and services and has made possible a higher level of living for Americans.

Increasing Importance of Women in the Labor Force

The employment of women in the American economy has increased rapidly since 1940. In the half century before World War II, the proportion of women in the labor force increased about one and a half percentage points a decade; but since 1940, the increase has been close to five per cent a decade (4.7 per cent). World War II brought millions of women into jobs and while many of them withdrew from the labor market in 1946 and 1947, the number and proportion of women in the labor force began to increase after 1947, and by 1954 more women were working than were working during the war.

The most important single change in the work of women in the past half century is the movement from unskilled and semiskilled manual work to clerical and sales employment. The percentage of women employed as proprietors, managers, or officials has also increased greatly, and the increase has been most marked since 1940.

How does the employment of women in America compare with that in other countries? Any attempt to compare social data from different countries is beset with numerous difficulties. Each country has different methods of compiling statistics and, in addition, the latest dates for which figures are available vary considerably from one country to another. In these times of rapid change, it is extremely important to have comparable data for similar periods of time.

One study has compared women in the labor force in the United States with women in the labor force in the United Kingdom, France, and Sweden. This study finds that in France women have continuously formed just over a third of the working population since the first census was taken, while in the United States there has been a steady rise in the proportion of women in the labor force starting at a much lower point of around 15 per cent in 1870, and rising to approximately 32 per cent in 1956. The development in Sweden is similar, with the exception that the percentage of women in employment reached its peak in 1940 and declined slightly after that.[2]

In Britain, female employment has been fairly constant although at a somewhat lower level than in France. In 1950, there were more than 50 women in the French labor force for every 100 working men, more than 40 in the United States and Britain, and about 35 in Sweden.[3]

[1] The National Manpower Council was established at Columbia University in the spring of 1951 under a grant from the Ford Foundation to study significant manpower problems and to contribute to the improved development and utilization of the country's human resources. The Council has already published volumes covering Student Deferment, A Policy for Scientific and Professional Manpower, and A Policy for Skilled Manpower. For the past three years, the Council has had under consideration a thorough study of womanpower, and a report covering this phase of the Council's work will be released in the winter of 1956-57.

[2] *Women's Two Roles*, ALVA MYRDAL and VIOLA KLEIN. London: Routledge and Kegan Paul, Ltd., 1956, p. 44, and data compiled by the National Manpower Council research staff.

[3] *Women's Two Roles, ibid., p. 45.*

U. S. Growth Prospects and Labor Needs

Although the employment of women in the American economy has increased greatly in recent years, prospects are that employment will increase still more in the coming two decades from 1955 to 1975. The current population of the United States of 167 million is estimated to increase to 227 million by 1975, or an increase of 60 million or more than a third. Births in the United States exceed 4 million yearly, and the net increase in population (births over deaths) exceeds 3 millions annually.

The recent very rapid increase in the birth rate in the United States will bring about significant changes in the age distribution of the population during the next two decades. There will be a much larger proportion of youth and aged and a lower proportion of the total population in the working age group. Using round figures, the proportion of the total population now under 20 years of age is about a third (34 per cent) while in 1975 it is estimated that youth will comprise 38 per cent of the total population. The aged group (those over 65) now comprise about 8 per cent of the total population while in 1975 they will comprise about 10 per cent of a much larger total population. This means that the working age group (20 to 65 years of age), which now constitutes 58 per cent of the total population, will constitute only about 52 per cent of a much larger total population in 1975.

This change in age distribution will mean that in general manpower will be short, with resulting high demand for labor, high wages, increased emphasis upon mechanization and labor-saving devices, corresponding increases in per capita productivity, and rising standards of living. Under such conditions, a relatively high level of economic activity is in prospect because labor demand-supply conditions will assure a comparatively favorable distribution of the total net product of industry to labor in the form of wages, with resulting high purchasing power to absorb the products of industry.

The changing age distribution of the American population is of special significance to women. With the increased numbers and proportion of youth and aged, there will be especially heavy demands for nurses and teachers. These are the two traditional fields in which women have excelled and will undoubtedly continue to maintain a position of pre-eminence. Consequently, in the traditional professions, women will find many excellent opportunities for rewarding employment.

The occupations which today employ the largest numbers of women are principally those involving their traditional functions: care of the sick, training of the young, making and caring for clothing, preparing and serving food, and keeping house. As these functions have been gradually removed from the home, women have continued to perform them in new surroundings and usually in substantially different ways. In the case of professional work, two-thirds of all women were teachers or nurses in 1950; in manufacturing, over half of women operatives were in the food, textile, and apparel industries; and in the service occupations women were predominantly in those fields including their traditional functions. However, there are millions of women working in jobs which have no relation to their traditional functions in the home. Over a third of all employed women are now in the secretarial, clerical, and sales occupations which are now generally thought of as women's work but which were at one time dominated by men.

Differences in Abilities and Traits of Men and Women Workers

Although there are now few strongholds in the American occupational structure that men hold exclusively, the facts are that occupations can still be divided into jobs that are primarily known as "men's" and others that are primarily known as "women's." There are four commonly held notions concerning abilities and traits of women workers as compared with men workers: (1) Women do not have as much mechanical ability as men; (2) women have greater manual dexterity than men; (3) women are more emotional and unstable than men; and (4) women are admirably adapted to routine or detailed work compared with men.

According to the National Manpower Council research staff, the best evidence available indicates little basis in fact for these commonly held notions; but their wide acceptance strongly influences the occupational distribution of women. It seems safe to conclude that in actuality there is a much wider range of difference within the sexes than between them. Nevertheless, one very important physical difference between men and women apparently does stand out, namely, that *most* women are *smaller* and *weaker* than *most* men.

The leading study of physical differences between men and women concluded that "on the average, women are only 85 per cent as heavy as

men and have only about 60 per cent as much physical strength." [4]

The following four conclusions would seem justified from this: (1) Women cannot lift or hold as heavy weights as men; (2) women cannot direct as much weight or strength to pushing or pulling loads as men; (3) the grip of women is not as strong as that of men; and (4) standing and sitting height, arm length, and size of hands and feet are all smaller in the case of women than men. Thus, machines built to scale of men's measurements often require excessive reaching or stretching by women, and the workbench made for men is often unsuitable for women.

These differences are becoming less and less important as machinery and equipment are continuously being substituted for muscle, and as the proportion of the labor force employed in laboring occupations declines.

Studies show that girls and women ordinarily score somewhat higher than boys and men in tests of verbal and clerical aptitudes, but not quite as high in mechanical and computational aptitudes. These relatively small differences do not seem to be inherent in the sexes, but reflect differences in background and experience of the individuals.

These differences are thought to be innate but the National Manpower Council research staff concludes that they are more likely, insofar as they do exist, to be the result of differences in *motivations* to perform certain tasks under specific conditions. It is, of course, very difficult to measure motivations. The only concrete evidence available is of an indirect sort and is reflected in *absenteeism* among women workers.

Women consistently show a greater tendency to miss work than men. This high rate of absenteeism is ostensively due to sickness, but according to the National Manpower Council research staff, it seems to be primarily a product of different attitudes toward sickness and performing one's accustomed functions when not feeling well. But, all the evidence on relative sickness rates is based on the individual's reports of his or her illnesses rather than on medical diagnosis. The National Manpower Council research staff concludes that there is no reason to believe women are in fact more susceptible to disease. On the contrary, they say, the mortality rate for males exceeds that for the female at all ages, and the hospitalization rate for disease among WAC's is no higher than it is among male soldiers. The higher rate of absences among women may, therefore, be due merely to the fact that women take their minor illnesses more seriously than do men. This is supported by the fact that the average duration of sick absences is shorter for women than it is for men. Many believe that the excess sick absenteeism among industrial women is due to the fact that they frequently attempt to do two jobs at once, namely, their work in industry plus their duties at home, which may demand heavy labor, worry, and interference with proper rest.

Sex labeling of jobs as being "women's work" or predominantly a "man's job" affects the distribution of jobs between men and women. This sex labeling is the result of many cultural determinants. The perpetuation of such labels persists, because, among other things, a job comes to be performed in a way which is consistent with the characteristics of the persons occupying it and loses those features which are not consistent. For example, if new machinery is introduced on a job performed by men, it may be larger, require more manual effort and longer training, and involve dirtier methods than it would if the job were performed by women, merely because engineers know they have greater leeway in these respects when men are employed. With rapidly changing technology or economics of production, or under manpower shortages, however, a much faster changing of the sex label occurs and a much more rapid rate of women breaking into new fields.

Making Most Efficient Use of Womanpower

With the prospective manpower shortages which will exist in the American economy during the next two decades, it is imperative that proper emphasis be placed upon the education and training of women for more effective roles in the labor force and that we establish the proper legal and employment conditions under which women can work most fully and effectively.

Anticipation of college attendance is far stronger among boys than among girls. The gross differences between girls and boys in high school curricula in subject-matter preferences are the products of several factors related to fundamental differences in the lives they expect—and are expected—to lead as adults. The proportions of girls following an academic program in high school and for whom college attendance is a goal are strongly affected by family influences and by their expectations of marriage. The Educational Testing

[4] From a study by Professor Anna Baetjer quoted in a preliminary draft of a statement on "Women in the Labor Market" by the National Manpower Council research staff.

Service study for the National Science Foundation in 1955 revealed that going to college was not a goal for about one-third of the girls and one-fifth of the boys among those senior year students who had made no plans for attending college. Half of the girls specifically indicated that college attendance was not a goal because they would "rather get married." For many girls still in high school the anticipation of becoming a wife, a mother, and a homemaker appears to be strong enough to condition their conduct with respect to investing in more education. Marriage expectations or plans, on the other hand, were apparently not part of the conscious thinking of the boys for whom going to college was not a goal. In their case, their occupational objectives were not yet defined or they did not feel a college education was required to fulfill their job aspirations.

The expectation of most teen-age girls that their future lives will be preoccupied chiefly, if not exclusively, with the homemaking they will discharge as wives and mothers has a very large bearing upon the educational objectives of girls in high school. This predisposes them to prepare for jobs which will be open to them immediately after graduation. Such jobs are overwhelmingly in the fields already employing many women, and the curricular and subject-matter choices of high school girls thus tend to reflect existing patterns of paid employment among women. It is not surprising, therefore, to find that better than a third of the girls in high school are enrolled in a commercial curriculum.

If the vocational goals of girls tend to be secondary to the expectations of marriage and to be defined in terms of jobs that are likely to offer immediate employment after completing high school, it is understandable why most of them are not inclined to think of their educational experience as a means of preparing themselves for a lifetime of activity in paid employment, or to get a broad college education. Thus, it becomes a matter of motivation as interpreted through cultural determinants which will determine how many of the more able and intelligent girls will go on to college to prepare most effectively for women's two roles—motherhood and employment.

In terms of education or training of women for more effective contributions in the economy through employment, it is felt that the present trend of early marriages is not especially desirable since many women marry with no professional training or special skills developed and then after marriage and when their children are no longer small, they are unprepared for remunerative work. Every effort should be made to encourage women who do marry young and have families to get started on their formal educations and professional training before their children are fully grown. If the mother starts on such education and preparation when her children start in school, she would be in a much better position to make necessary adjustments later satisfactorily, as well as being a better employment risk when the children are grown than if she were to wait until the children were ready to graduate from high school or college.

In general, it would appear that there should be no major differences in the training and education taken by girls at the high school or secondary level from that taken by boys. In addition, it is essential that legal provisions be established so that women may be employed without any discrimination because of sex. This does not preclude special legislation to provide for maternity leaves and special sickness leaves consistent with women's special situations.

Calling Home Economists with New Names and Addresses

You are one of AHEA's concerns. Six per cent of AHEA's total membership of 23,267 as of January 1, 1957, changed name and/or address during the first five months of 1956-57.

Time and accuracy are two big factors in your receiving effective service from headquarters. Immediate and accurate notification of a change in your name or address has double value. You will receive your JOURNAL and other communications more promptly, and the Association will incur less loss of time and money.

Post offices all over the country notify AHEA monthly that JOURNALS cannot be delivered because the member has moved and her address is unknown—the result is delayed service and extra costs.

Please help us and yourself by informing us immediately of a change or contemplated change.

Teaching in a Foreign Land

Kathryn M. Towne

Miss Towne is a professor of home economics at George Washington University in Washington, D. C., and has taught clothing in Greece. This article is an outgrowth of work done by a subcommittee of the AHEA textiles and clothing section on teaching textiles and clothing in foreign countries. Miss Towne was committee chairman. Other members were Helen Douty, University of Hawaii, Hazel Westby, University of Rhode Island, and Catherine Doerr, Temple University, Philadelphia.

THE clothing specialist has given considerable thought to going to a foreign country to teach her specialty—clothing. She has much to contribute. Her questions are endless after she has made up her mind to undertake this project. How far ahead of the teaching date should she arrive at her new post? What should she take with her? What should she be prepared to teach? What is the way of life and the culture of the people in the assigned foreign country? How do these differ from life and culture as they exist in the United States?

In planning the date of her arrival she must realize that she will require an orientation period before beginning her work. The time which she must allow for this will depend upon the country, its transportation facilities, costs, information available to her, and whether or not she will work through an interpreter.

If her students are to come from the farms, villages, and cities it is imperative that the teacher visit in homes of each location so that she may understand and evaluate the thinking, conditions, and the ways of the people. In some countries, mothers do not allow their unmarried daughters to go to homes where there are sons of marriageable age. This may alter a teacher's plans for projects which she hoped to carry on in the homes. Since the students may live in widely separated parts of the country, the teacher must visit a number of areas. In most countries one cannot make generalizations about the people, problems, or ways of living. Each section may differ in various aspects, such as the position of women, their freedom, and the amount of work they do. In some countries no two geographical sections are alike. In others there may be a sameness throughout.

Travel in the country will reveal circumstances which the teacher must take into account in planning her program. For example, the background of the probable students, including their home life and experiences; the importance of religion, historical events, and customs in the lives of the people; the activities—social and otherwise—in which the women participate; the habits of the people, including those of buying commodities; the kind, variety, and importance of clothes for the members of the family; how and where the clothes are made; availability of fabrics, accessories, equipment, and supplies; types of stores from which families buy; laundry methods and laundry and dry-cleaning establishments if there are any.

In some countries the people may feel very strongly about their religion, historical events, or customs. How much time ought a teacher allow for them in her schedule? She must not minimize these or try to regulate them according to American ways. She must be amenable and understanding in the situations. A teacher in Greece was confronted with Holy Days not listed for her. On another occasion, the people decided to observe the day on which Constantinople fell five hundred years before. It had not been solemnized for a number of years. With the co-operation of the school a tea had been planned for that day. Invitations were out, even to representatives of the Queen and the minister of agriculture. A few days before the event the teacher was informed to her surprise that nothing could be held on that day. It was to be a day of sadness throughout Greece. Also in Greece, Easter, with its religious significance and ceremonies, took much more time out of school than was originally planned. Easter is more important to the Greeks than any other time of the year, even Christmas. A Greek will put forth every effort possible to be with his family no matter the distance. Families will do without many things during the year in order to celebrate Easter in the customary way. Such traditions cannot be ignored by the visiting teacher.

Teaching Aids

Teaching aids of various kinds are invaluable because they avoid the language barrier. However, a teacher will usually be limited in the amount of teaching material which she can take with her. What should she select? The more that she will have, the easier will be the preparation of class work. Often supplies are limited. In some countries even paper is scarce.

Many of the countries do not have patterns as the teacher knows them. Therefore, basic patterns and patterns of simple and of recent design in an assortment of sizes will be of great help. The most needed patterns are for underwear for all members of the family, men's and boys' shirts, babies' and children's clothing, and women's and girls' simple dresses, blouses, and skirts. A half-scale pattern to save material in demonstrations and preparations of illustrative materials is advantageous.

A half-scale or a size 14 dress form will be useful in demonstrations of pattern making, designing, and fitting. The students may like to work out problems on it, too. With supplies for a gummed tape form such as that available at mail-order houses, or similar local supplies, the students may be able to work out satisfactory forms.

Samples which the students may handle should illustrate construction and decoration techniques suitable for fabrics of different weaves, fibers, designs, as well as ways of achieving variety and interest in clothing.

Whatever baggage space the teacher can spare en route should be filled with books on design, clothing construction, and textiles because such books are scarce in many countries.

While the teacher is to teach clothing, the other topics which she should be prepared to teach are many and varied. In preparing her material she must continually remind herself of how limited are the experiences of most of the students. In most areas outside of the United States, the people do not have mass-produced clothes. Nor have they fashion magazines at easy reach to help develop their sense of style and use of materials. In many countries the students wear homemade clothes exclusively; in others, those made by village dressmakers. In some places, the teacher may need to spend considerable time and effort, maybe a disproportionate amount, in helping the students develop a more understanding and imaginative use of available materials. Sometimes they have no desire for individuality and style. They live within a cultural pattern already set for them with no thought of being able to determine for themselves the path that their lives may take. In some places, students attempt to follow their ideas of Paris fashions whether practical or not.

A Greek student examines silkworm cocoons during an experiment on the feasibility of sericulture in Greece.

There is no one way for the teacher to overcome these limitations. She may need to experiment on them in each situation.

Another problem on which she may need to experiment is that of helping the students understand and adjust to the present-day way of life. In many countries students are either very rich or very poor. The rich ones have not learned to do things for themselves or even in many cases thought about home problems. Most things are done for them by servants. The poor have learned little. Their homes and lives are extremely simple. They always have had to work hard.

Throughout all of her teaching, the visitor should help the students build up a good appraisal of the culture and art of their country with its applications. An example of this could be the use of the beautiful designs from a country's art, such as the Byzantine art in Greece. With this would come the need to know how and where to find these designs and then how to apply them. In Greece, with all its wealth of designs, a young girl trying to be up to date attempted to represent the popular grape design with bunches of yarn grapes set on sateen leaves which were appliqued onto a sofa pillow top. The design was disappointingly gaudy and did not fit with the things in her home.

Throughout her teaching, the visitor can try to stimulate respect for efficient methods of work, appropriate or correct techniques, and skills for the jobs to be done.

The specific material which a visiting clothing specialist should be prepared to teach will vary with the country and background of the students.

Students in Greek home economics classes admire garments made in the clothing construction courses.

A display in a Greek school includes charts showing traffic patterns in different room arrangements.

As a general rule, material in the areas listed below will be essential:

GOOD GROOMING

Personal hygiene, which can be a ticklish problem
Use of cosmetics according to the country's culture and ideas

CLOTHING

Either pattern construction by measurements or draping or both
Use of patterns (principally those sent from the United States)
Alterations of patterns
Pattern blocking from a basic pattern
Techniques in construction suitable to various designs, fabrics, and fibers
Pressing—without steam irons
Exactness and accuracy in construction
Ability to follow directions, use books and illustrative materials for help
Preparation of work sheets on processes
Mending and repair of clothing and household articles
Suitability of clothing for the members of the family

TEXTILES

(Subject matter should be pertinent to the country)
Simple tests in textiles
New fibers and finishes, although not available to the people at the time, may be later
Appropriate uses of various textiles
Care of clothing and household articles
Home laundering
Spot and stain removal
Hand washing of wool sweaters, new fabrics of man-made fibers, blends, and new finishes
Ironing of various kinds of fabrics according to fiber content
The buying of textiles for clothing and household purposes
Some simple research and experimentation to suit the problems presented by conditions and supplies in the country
The making of household soap if this is or should be a household activity

The above are suggestions, not recommendations. For one individual to teach all of the material takes a versatile person. Her success depends upon her attitude toward the job, an understanding of a different way of life, and an appreciation of the past and the present and how these affect the lives of the people. It is well for the teacher to remember that she is trying to help her hosts improve their way of life and their economic and social situations.

One final suggestion: If it is possible, the teacher might somewhere in the work help the students seek information on the kinds of handicraft that tourists might like to purchase. Students need to find out the sizes needed, qualities desired, and any other information needed to make the goods attractive to the tourists. Too often the students pattern the articles on their own limited ideas, having little knowledge of the American way of life.

Conference Report Ready

Proceedings of the Conference on Training of Family Economists for College Teaching and Research sponsored by the AHEA family economics–home management section at Pennsylvania State University, University Park, June 21 to 23, 1956, have been multilithed for distribution by the AHEA headquarters office, 1600 Twentieth St., N. W., Washington 9, D. C. Price 50 cents.

Reaching Our Double-Duty Homemakers

Ellen LeNoir

Miss LeNoir is state home demonstration agent in the Louisiana Extension Service, University Station, Baton Rouge, and has also worked in the Extension Service in Florida and Nevada. She has served as president of the Louisiana Home Economics Association and as secretary of AHEA. She is now a member of the Association's committee on federal research related to home economics.

THE old order changeth, yielding place to new" is as true of education as it is of transportation, farm machinery, and women's hats. School is still the place where children learn the 3 R's and other things in both old and new ways. But the places and methods of their mothers' continuing education are changing rapidly.

Among the reasons for the changes in women's education is the metamorphosis that has taken place in their socioeconomic pattern. According to the latest census, there are in the United States 15,735,660 women 14 years old and older who are gainfully employed outside their homes. (Other unpublished data give a higher figure.) These 15 and more than a half million women are 27.5 per cent of the women in the United States; 38,618,610 of them are urban and 18,464,580 are rural.

This large group of women whom the home demonstration agents have been accustomed to think of as their educational responsibility have moved into an area where teaching them presents entirely new problems. Agents, along with other adult educators, are asking themselves if they know how they are going to teach these women who have become a different group. What are their new problems in reaching women with a job outside the home? What can be done to solve these problems after they have been identified?

Let's look at some of the ways in which the differences between these gainfully employed women and women who are homemakers not otherwise employed present new problems in reaching them with educational programs. Among these problems, the following list is not exhaustive, but is stimulating:

The first one is the homemaker's time schedule. It is changed because of her job away from home. The homemaker without another job gets her husband off to work, in the fields if they live on a farm, in the office, shop, factory, or other place of occupation, if they live in town, and she gets the children off to school. Then she can decide in what order she will do her homemaking and her outside activities. If she wishes to go to a club meeting in the morning or in the afternoon, she can work her housekeeping jobs into an adjustable schedule. The homemaker who also works outside the home has not this freedom of time schedule. She herself, like the husband and children, must leave home at a certain hour, must be away approximately eight hours, and must manage, in addition, to do the housekeeping. When can she take advantage of educational programs for personal benefit or for making her a better homemaker?

Another new problem involved in reaching and teaching the women who work outside the home is *the homemaker's changing interests.* One's point of view may be that the gainfully employed woman has broadened her interests; another's opinion is that her interest is less home-centered. In either case, she has changed interests; she is not satisfied with the same type of program desired by the woman without an outside job.

A third new teaching problem lies in the fact that *the woman employed outside the home is a doubly busy homemaker.* She has not as much time to spend on educational programs as has the woman whose full time is devoted to her homemaking activities. If she gets benefit from such programs, she must get it in a short period.

A fourth problem in reaching working women is that *a homemaker who has an outside job may be a tired homemaker.* The woman who makes a happy home and carries on another regular occupation has to manage her time and energy. The census states that nearly one-third of the gainfully employed women are mothers. These 5,085,390 women, before they go to their outside work and after they return from it, have the rearing and training of their 11,653,287 children to fill their hands and their hearts. They can afford to give some of their crowded time to only those activities which they feel are worth while to them.

Making New Program Schedules

Home demonstration agents and other adult educators realize that these women who work outside the home make up a large part of their clientele. How can they, as well as the full-time homemakers, be reached with educational programs? The few common problems just listed, among the many that could be named by specialized groups, present a challenge. Every problem stimulates the alert educator to find its solution.

If a home demonstration agent wishes to reach these women whose schedules have been changed, she must consider changes in her own time schedule. If she cannot get them to meetings in the afternoons, she begins to think in terms of their free times. Such times are late afternoon, at night, at the noon-hour in certain jobs; on Saturday if meetings are to be planned with them; early in the morning and at night if radio, television, and the newspaper are the media to be used to reach them. (An agent works during these extra hours to reach only part of her clientele. She must have the understanding co-operation of her own supervisors and the local officials and leaders in arranging compensating free time during some of the traditional work hours.)

Using a Variety of Media

In addition to offering educational programs at hours which are new to her, in order to reach women who work outside the home, the home demonstration agent is developing new skills. She finds it necessary to increase and improve her ability to teach through using the newspaper for educational materials that are interesting enough to appeal to rushed and tired women.

She is becoming at ease on radio and television. In using these two teaching media, she really has to develop skills. If she is to reach and hold her desired audience, she must be good not only in presenting subject matter which women with changed interests want. She must also present it in such an attractive manner that they will accept it. She must recognize that her educational programs are competing with the serials and other features in two ways—one, in the station's allotment of time; two, in the women's interest. She has to be well grounded in her information, skillful in her technique, and alert in feeling the public pulse.

Reviewing Teaching Methods

Besides developing new skills, the home demonstration agent who wishes to reach the different groups of women who are her public realizes that she must use a new slant on some of her time-honored teaching methods.

An Extension Service specialist, a home demonstration agent, and an assistant present an educational program on radio, timing the program to reach working homemakers who cannot attend meetings during the day.

One of these is the result demonstration. People have always learned by observing the way their neighbors were doing things. This way of learning is still effective among homemakers who are giving their full time to that vocation; it is perhaps even more effective among women who work outside their homes because the object lesson in the neighbor's home is there for them to see at their own convenience.

Another long-used teaching means which is holding its own with old-time homemakers and taking on new significance with working women is leader training. The agent who trains leaders from the neighborhood, or the factory or shop, is passing on her educational program through the neighbors who can be available at the women's free time as the agent cannot always be. Also by this training, the agent is providing for a portion of the teaching in either the old regular schedule or the new one of unusual hours to be done by a volunteer helper. Thus she manages part of her compensating time by this procedure of "multiplying herself by the number of her local leaders."

Material mailed to women who need and use it is a time saver for working women though not for the educator until she has learned to use this kind of distribution. A folder of material or a carefully thought-out circular can be prepared definitely for certain interest groups, or for leaders

of groups, or for even individuals who are potential leaders. This material can give trends in clothing, consumer information on household equipment, recent research on nutrition, helps on child care—whatever the individuals need and will use. Such a mailing to a classified list may be periodic or may be for special contacts. It will meet a need of the working women who want the information but have not time to look it up or opportunity to go to meetings.

Visualizing the Homemaker's Needs

An agent learns to give a different type of educational program because women who work outside the home develop a different set of interests at the same time that they retain their home interests. She also must learn to plan and execute her own teaching programs in such a fashion as to use a minimum of the homemaker's time for maximum benefit.

The home demonstration agent of today has a real opportunity in the development of managerial skill among busy homemakers. She can help them plan the time schedules of their housekeeping duties and the arrangement of their equipment. In so doing she can help them save time and energy for educational programs in addition to the two jobs of homemaking and income earning.

The agent can help women learn to use efficiently the labor-saving equipment that is available to them. To be able to give this help to women, the educator has the prior responsibility to learn about the new equipment herself. In the matter of judgment, she can sometimes help them develop sales resistance to gadgets which do not fit into their particular family living pattern.

Another way that the home demonstration agent of this workaday world can help busy homemakers is in plans for building, remodeling, or rearranging their houses. These houses should be attractive homes where the family will love to gather and the members will feel some aesthetic satisfaction. They should also be convenient to save the woman's time and energy; and they should be of easily cared for materials and construction.

Helping women systematize and simplify their housekeeping will help them become reachable with educational programs.

There are many other problems with many other solutions. Each worker who tries to present educational programs to varied classifications of women must be alert to recognize them as they arise.

The adult educator herself may be one of these job-holding women who has also homemaking responsibilities. If so, she has a sympathetic point of view. Whether so or not, she has the challenge of meeting ever-new problems of reaching with educational programs as many as possible of the full-time homemakers and also the women who work outside the home. Let no one think that any adult educator need be discouraged by the new problems which our changed socioeconomic pattern presents. Every new problem instead should bring her to a threshold of evolving new solutions. If one may paraphrase: women of courage will rise up to meet the dawn.

"For You—a Double Future in Home Economics" New Career Publication Off the Press February 14

"Enough information to be really helpful, presented with a light touch in a gay format" was our goal for AHEA's newest career booklet on careers in home economics. The booklet—our first over-all career publication for teen-agers since 1952—includes up-to-date descriptions of activities in all major career areas and in the areas of study as well as a few hints on what it takes to be a success in home economics and pointers on college. Rewarding professional opportunities and education for homemaking are the double future one finds in home economics, the booklet says.

Over-all suggestions and assistance for the booklet came from a group of Pittsburgh members—U. Vivian Crow (chairman), Irene E. McDermott, Margaret Mitchell, Veronica Volpe, and Mary Vincent. Representatives of sections contributed material, and the AHEA executive board, the Office of Education, Extension Service, and the American Dietetic Association reviewed the copy.

"For You—a Double Future in Home Economics" is an important new recruitment tool for every AHEA member. Use it for your personal, school, and organizational recruitment program. Available from AHEA, 1600 Twentieth Street, N. W., Washington 9, D. C. Price 25 cents.

Food and Nutrition Teaching in Ferment

Dorothy L. Hussemann

Chairman of Editorial Committee

This article has been prepared for the *Journal* as the report of the second Conference on Teaching Foods and Nutrition in Colleges sponsored by the Home Economics Education Branch of the Office of Education and held in Washington in May 1956. The first Conference was reported in the October 1955 issue of the *Journal*.

REFERENCE to the faithful authority Webster indicates that to be "in ferment" is to be in a state of excitement or "a state of unrest." Such a condition can fairly be said to exist in the college teaching of food and nutrition at present. The need for a re-evaluation of philosophy, course emphasis and content, and classroom methods has been apparent to many college teachers in this area for some time. Form and substance were given to these convictions in a meeting called by the Home Economics Education Branch of the Office of Education in Washington, D. C., in May 1955. The group of educators from the food and nutrition area who met there tried to analyze their current teaching problems in elementary college courses. We considered what we chose to call "the realities" of the present day, including situations presented by home life, secondary schools, marketing procedures, research results, and forces—social and economic—which influence the background of students and which should be recognized in the college teaching of food and nutrition. Having reviewed this background together, we tried to determine the scope and nature of current teaching problems. In so doing, we listed aims for modern food and nutrition courses and sought means of motivating students to progress toward these goals.[1]

Subsequent to the Washington meeting, with members of the group who had been in attendance there acting as organizational committees, regional meetings were planned for additional college teachers. Eight such meetings were held in the United States with a total attendance of between 250 and 300 persons, representing 164 colleges. Typical of the questions raised at the meetings were those discussed at a Tallahasee (Florida) meeting. That group asked itself: What is pertinent today in the college teaching of food and nutrition? What is of permanent importance? What are the characteristics and needs of students? How does increased enrollment affect our work? Are we meeting the needs of nonmajors? Is there too much emphasis on the development of skills? In Phoenix, Arizona, the group phrased some of the questions differently. For example, they asked: How can we plan and teach beginning classes containing students with varied backgrounds, skills, attitudes, and experiences? Or again, how can we as instructors of food and nutrition courses free ourselves of tradition and teach in a way that is realistic in the light of modern living conditions? Other groups from Philadelphia to Salt Lake City and from Chicago to Shreveport struggled to gain new insight into making food and nutrition teaching realistic today. Because of this self-analysis by college teachers of food and nutrition, it seems that a ferment is abroad in this teaching area.

Further impetus was given when a large number of the group who had first met in May 1955, plus a few additional people, assembled in Washington in May 1956 with members of the staff of the Office of Education for further discussion.[2] For three and a half days they participated in a series

[1] E. S. Eppright, College Teaching of Food and Nutrition. *J. Home Econ.* **47** (1955), pp. 595-598.

[2] Persons attending the conference in May 1956 were: Melva B. Bakkie, Carnegie Institute of Technology; Helen F. Barbour,* New Mexico College of A. & M. A.; Josephine E. Brooks, University of Nebraska; Helen Cate,* Florida State University; Helen Charley, Oregon State College; Elna Daniels, University of Connecticut; Margaret A. Eppright, University of Texas; Mary Fuqua, Pennsylvania State University; Ruth Hackman, Radford College; Dorothy Hussemann,* University of Wisconsin; Pearl Janssen, University of Illinois; Madge Miller,* Iowa State College; Vera Newburn, Colorado State College of Education; Joyce Reed, University of Wyoming; Grace Steininger,* Cornell University; Pinkie E. Thrift, Southern University; E. Neige Todhunter, University of Alabama. Edna Amidon, Margaret Alexander, Johnie Christian, Beulah Coon,* Ata Lee, and Rua Van Horn of the Office of Education worked closely with the conference.

* Members of group assisting with writing this article.

of deliberations focused upon a consideration of the means for providing food and nutrition teaching for undergraduate college students which is best suited to their current needs. In general, the discussions were of two types: (a) building upon the thinking which had gone on in the 1955 meeting, the group sought means of implementing the accomplishment of the aims which had been agreed upon, and (b) discussing specific problems which have been troublesome at a number of institutions —for example, what, if any, should be the nature of the chemistry courses which precede work in food and nutrition; should a student, previous to enrollment in a course, be pretested with a view to ascertaining her level of knowledge and/or skill in food and nutrition and, if so, how should the information obtained from the pretest be used?

When the aims for food and nutrition teaching as agreed upon in the 1955 conference were reconsidered, it appeared that they could be classified broadly into five general categories. These included aims dealing with: (1) food principles; (2) management of time, energy, and money; (3) social and psychological factors; (4) nutrition and health; and (5) research. While this classification provided a quick and interesting way to review the aims, it was readily demonstrated that an individual aim frequently and logically could be listed under more than one heading.

In order to help each other with implementing the accomplishment of the aims listed the previous year, we spent some time considering the student experiences which might be provided to further the aims and then summarized the key ideas which would be fostered for the student by the planned activities. After trying this out together, we divided ourselves into groups concerned with the teaching of foods, with the teaching of nutrition, and with integrated foods and nutrition courses. An example of our thinking follows:

For the aim "To develop the conviction that 'food makes a difference' to the extent that selection of a good diet becomes routine," the student experiences which were suggested included:

1. Observing and carrying through demonstrations of chicks, rats, or dogs fed good and poor diets
2. Analyzing pictures, slides, films, charts, or graphs showing effects of different kinds of diets
3. Observing effects of diet on people around them
4. Analyzing their own diets and health problems
5. Reading results of well-controlled dietary studies
6. Hearing descriptions of dietary experiments
7. Observing and feeling teacher's conviction that "food makes a difference"
8. Considering dietary problems members of the class or their friends have (children of class members, pregnant women, or others) which would have value to all students
9. Observing diet of babies and its results over a period of time

From the experiences listed, and others which suggest themselves, it is hoped the student would gain the following ideas:

1. Selection of an adequate diet is important and worth while.
2. Properly chosen food contributes to social success, attractive appearance, improved personality, and more vitality (those things which have value for this age group).
3. Good nutrition is good economy. Sickness is not only financially expensive but may interfere with professional and personal goals.
4. Properly chosen food contributes to the well-being of future generations.
5. Health of the unborn child is influenced by the nutrition of the mother.

Helping each other to think through student experiences needed to achieve given aims and the key ideas students might evolve from these experiences proved to be a challenge to our thinking and a basis for getting help from others in the group.

The group discussions stimulated individuals to arrive at some of these convictions: (1) standardized courses are neither necessary nor desirable. (2) Reviewing the objectives of any course and categorizing them into major groups of aims may help one to analyze what is really important. (3) All courses should be examined frequently to be sure they bring out key ideas. (4) Revitalizing a course requires much preplanning, research, and making better use of resources available. (5) Experimentation with teaching methods and content is desirable. Older concepts should be examined and retained only when shown to have merit in terms of today's values and today's needs. (6) In some cases, food and nutrition programs may be weak in their failure to apply principles of management. (7) It is most desirable to integrate intimately the subject matter of food and nutrition, but how to do so is still a problem in many instances because of personnel and laboratory facilities. (8) The advantage of an integrated beginning food and nutrition course may lie in part in integrating the two facets of the science at the beginning of the student's training. (9) The aims as outlined in 1955 would usually be attained in a well-integrated sequence rather than in one

course. (10) Food and nutrition teaching should be broadly correlated with other related knowledge. And, finally, (11) Science requirements as prerequisites to food and nutrition courses permit a greater depth of understanding of the subject matter in these courses.

Turning to a discussion of some of the more specific problems which cause concern among college teachers of food and nutrition, the conference spent some time on the consideration of chemistry as a prerequisite to courses in this area. Inquiry revealed that among the institutions represented there was rather wide variation in the chemistry requirements. While most schools teach some elementary courses in food and/or nutrition without a chemistry prerequisite, the more common practice appeared to be the retention of chemistry as a prerequisite for the advanced courses. Reasons expressed for such a procedure included:

A. By teaching an elementary foods and nutrition course without a chemistry prerequisite, opportunity is provided to acquaint the student with an exciting and challenging field of knowledge which will be open to her when she gets her background in chemistry. Thus the student may come to see the value of chemistry and, as a result, the chemistry courses are more meaningful.
B. The attrition rate is high—there may be no opportunity to teach the student anything in the food and nutrition field if courses are postponed until chemistry is completed.
C. Service courses without chemistry prerequisites are made available by departments of foods and nutrition to non-home-economics majors. It would seem fruitful to provide similar opportunities for home economics students.
D. Food and nutrition courses which do not have chemistry prerequisites should be thought of as general education. Such courses may have depth and substance but may not be planned as professional courses.

The group urgently recommended that a chemistry course, or courses, required of home economics students, regardless of whether they are taught in the College of Home Economics, taught as a special course for home economics students by the chemistry staff, or taught as courses in chemistry for any student on the campus, should be so taught as to serve as a prerequisite for more advanced chemistry courses for those students who may wish to have additional chemistry credits. It was further urged that every food and nutrition course that has a chemistry prerequisite be so structured that the student's background in chemistry be used.

The group also gave some time to a discussion of the pretesting of students previous to the elementary courses. The consensus seemed to be that such tests are more needed for foods courses than for nutrition courses although some people felt that there was equal need for pretesting students enrolling in nutrition courses. The latter concept was not subjected to as thorough discussion as was the problem of pretesting for foods courses. Various possibilities for pretesting for foods courses were enumerated, including written tests, laboratory examinations on individual dishes or meals together with an evaluation of the products prepared, and judging of products previously prepared by instructor. In the latter instance, explanation for the judgments would be required also.

Institutions represented varied in the uses they make of the results of tests. Students are excused from a course or part of a course, put into different sections, provided opportunity for different kinds of experiences during laboratory hours, or given credit for the course. One institution provides a remedial course without credit in the fall for those students who lack skill and certain basic understandings. All students can then begin the second semester with a more similar background in lieu of pretesting. Another institution asks all students to attend lectures and demonstrations but to decide for themselves whether they need the laboratory work when individual foods are prepared. They are expected to be present when meals are prepared. It was agreed that, to date, the attempts at pretesting leave much to be desired. It is hoped that further efforts will be made along these lines at various institutions and that the results will be reported at a later date.

These two meetings, together with the regional meetings, have provided stimulating opportunities for college teachers to think together about the food and nutrition teaching programs. It is apparent, however, that the problem of so directing foods and nutrition courses as to make them vital and meaningful in meeting present-day situations is not one which is quickly or easily solved, in spite of the efforts many individuals and institutions are constantly making. Further opportunities are needed for experimentation, for sharing the results of experiments, and for regional and national group work if the desired results are to be attained. Being in ferment is not always comfortable; for interested persons to be able to work together on mutual problems may relieve some of the discomfort. For this reason we are looking forward to the regional meetings in the year ahead and to another meeting in Washington in 1958.

A Profession Grows

A profession grows through service, through co-operation of all of its members, and through the vision, guidance, and personalities of its leaders. The following sketches honor the contributions of two of the leaders of home economics—AHEA presidents who have retired from certain professional responsibilities during the past year but continue to serve the profession and the Association.

Kathryn Van Aken Burns

JOAN CASSIDY
AHEA Headquarters Staff

After 36 years of extension work in Illinois, Mrs. Kathryn Van Aken Burns can look back to the days when her work took her over roads that weren't roads, in automobiles with springs that didn't soften the bumps. Mrs. Burns retired as state leader of home economics extension at the University of Illinois last September. Her work involved a great deal of travel all over the state. "But I never minded the driving. Being out in the open country is one of the joys of extension work," she says. Mrs. Burns joined the staff as nutrition specialist in 1920, became assistant state leader of home economics extension in 1921, and state leader in 1923.

"In the beginning," she recalls, "our work was largely promotion." Rural women had to be encouraged to accept the helpful hand being offered them. Surprisingly enough, the men were often more receptive to the aid being offered their wives than were the women themselves—perhaps because the men had already seen the benefits of the county agent's programs. "Oh, it was work," Mrs. Burns says with an emphatic nod of her head. Then, with a sigh, she adds, "But, it was wonderful."

Testimony to her wonderful work are the 101 counties with extension programs in Illinois today. In the 1920's only 18 counties were taking part in these programs. The problems of supply and demand have changed, too, over the years. When Mrs. Burns first started her work, she had an abundance of personnel and not enough demand for their abilities. Today, the demand exceeds the number of extension people available.

Mrs. Burns was the only "extension" president of the AHEA. She held office from 1936 to 1938. When asked to recall Association business of that period, Mrs. Burns says, "We were working hard, as usual, to have home economics recognized as a profession and a worth-while career for women. There have been great strides taken in that recognition in the past 20 years."

Now that Mrs. Burns has retired from her extension work, the Association is again claiming more of her time. She has joined the staff as a temporary, special assistant to the AHEA committee on federal research related to home economics.

Her spare-time activities reflect Mrs. Burns' warm personality. Her name was once given by a friend to a Vietnamese student. Mrs. Burns befriended him, and he began to bring other foreign students with him when he came to visit. That was seven years ago. In those seven years the number of students she has entertained has grown. Recently, 16 foreign visitors from several different countries spent an evening at her home in Illinois. Speaking of what she has learned of the wartime tragedies of these students, Mrs. Burns ponders, "So many of them have come through so much, you wonder how they manage to stand up and keep going." She corresponds with some of the students after they return to their own countries. One letter sent Mrs. Burns off to the Vietnamese Embassy for information. Her correspondent had written asking for seeds. "I had to find out which of our seeds would adapt to Vietnam's climate and soil," she explains. Perhaps, one day, she will be able to visit Vietnam and see the fruit of the seeds she sent.

Of her interest in these students and of her many years of work in the Extension Service, Mrs. Burns says philosophically, "I've found you gain much more than you give."

Marie Dye

IRMA H. GROSS
Michigan State University

In 1922, an eager young woman arrived on the campus of a college then known as Michigan Agricultural College. She had two things of special note with her. One was a brand new PhD, and the other—a deep conviction of the important place of science in the education of women. Dr. Marie Dye came to the staff—its first PhD—filled with enthusiasm for research.

In the early years, when she had time, she con-

Kathryn Van Aken Burns
AHEA President, 1936-1938
Illinois Extension Service, 1920-1956

Marie Dye
AHEA President, 1948-50
Michigan State University, 1922-1956

ducted research projects herself. Later she encouraged and found substantial support for research in all aspects of home economics. "A field of learning," she said emphatically, "develops only as fast as fundamental research is produced."

But soon there was not much time for Dr. Dye to do research herself, for promotions with their increased time-consuming responsibilities were coming to her very rapidly. The promotions culminated with her appointment as professor and dean of home economics in 1930—a position she held for 26 years.

Those were rich years for home economics at this college which was later to become Michigan State University. During her deanship, the Division of Home Economics became first a School of Home Economics and recently a College of Home Economics. From having all phases of home economics together as a general "Division," they were departmentalized into foods and nutrition, textiles, clothing and related arts, home management and child development, and institutional administration. Graduate work leading to the master's degree was developed in all departments, and in foods and nutrition to the doctorate. Miss Dye's zeal in emphasizing graduate training beyond the master's degree for home economists in college teaching and research stimulated the alumnae, her staff, and her friends to establish the Marie Dye Fellowship Fund for such training.

As president of the American Home Economics Association, Marie Dye was instrumental in encouraging foreign students to come to the United States for study. She recognized the influence of these foreign students and the exchange of home economics teachers around the world as an important contribution of home economics toward world peace by promoting better family living in all countries.

During her presidency, Dr. Dye continued to press the urgent need for research in home economics. She worked on projects and programs and gave talks promoting research. For five years, she worked on an AHEA committee to establish criteria for evaluating college programs in home economics. The work of the committee culminated in *Home Economics in Higher Education* of which she is a co-author. It was published during her presidency.

Public recognition of her achievements in the field of home economics has come not only through her election to the many important offices she has held but through three citations. These are: a citation as distinguished alumna from the University of Chicago, a citation from Omicron Nu at its 1955 conclave, and, most recently, the honorary doctorate by Michigan State University.

The following excerpts from Omicron Nu's recognition scroll summarize her achievements in part:

> Research—by emphasizing it in the program of the School of Home Economics.
>
> World-wide movement of home economics—by attracting foreign students to the study of home economics in American colleges and by offering her personal friendship and encouragement to them.
>
> . . . .
>
> Increasing the status of home economics as a profession.
>
> She has realized these achievements through her constant efforts and the inspiration of her courageous philosophy of living.

Now that she has retired and is on a year's sabbatical leave, Dr. Dye expects to do some traveling. She has been brushing up on her French for a European trip. She is counting on *"Parlez plus lentement, s'il vous plaît"* to help with language crises. We don't think she'll need it often. *Bon voyage,* Dr. Dye.

Farm and Home Business Centers[1]

Helen C. Potter

Dr. Potter was an associate specialist in housing at the University of California (Davis) when this study was done. She is now an associate professor of economics at Loyola University in Chicago.

IN every farm home there are two business operations, one concerning the farm and the other centering around the home. Each is of a magnitude to require special facilities for the clerical work involved. In managing both the farm and home, there are records to prepare, letters to write, tax returns to make, and buyers and sellers to interview. To provide adequately for these and related activities, it is necessary to determine the space required and its most desirable location in the house.

Sources of information. Space requirements for farm and home business centers have received little attention in the past. Maud Wilson (*1, 2*) in "Housing Requirements of Farm Families in the United States" pointed out that:

> Farm homemakers are decidedly in favor of a room set aside for these business activities, not only because it is more convenient for the farmer, but also because it segregates . . . business from routine household activities.

Various surveys of farm housing have contributed information relevant to farm and home business centers. A study of 55 farm families in Harvard County, Iowa, showed that record-keeping was divided about equally between kitchen and dining room (*3*). All but two of the 55 farm families interviewed in Kane County, Illinois, kept farm accounts: 30 per cent in an office, 28 per cent in the dining room, 24 per cent in the living room, and 18 per cent in various other locations (*4*).

The national survey of farm housing needs and preferences conducted in 1948-49 included questions on the facilities needed for farm business activities. Fifty-nine per cent of the families interviewed in the Western Region expressed a need for a farm business center (*5*). One-fifth of the respondents wanted an office for conducting such affairs, while nearly two-fifths felt that the business could be conducted with a desk-file, or desk and file located in one of the other rooms of the house. The living room was preferred by 46 per cent of the latter, dining room by 17 per cent, library or den by 10 per cent, kitchen by 8 per cent, bedroom by 5 per cent, and other rooms by the remainder. One-half of the number wanting an office for a business center planned a secondary use for it. A library or den was the secondary purpose most frequently stated, but some families wanted the office to serve as a second living room or a guest room.

Findings, based on 500 replies dealing with equipment and facilities used in conducting farm and home business in West Virginia, revealed that 67 per cent of the farm families used a desk in conducting business activities of the farm and home, 53 per cent used a table, 8 per cent a safe, 35 per cent a bookcase, 21 per cent a typewriter, and 15 per cent a filing cabinet (*6*). The desk and bookcase were usually found in the living room and the table in the kitchen. Families with no filing cabinet and insufficient storage space in desk drawers kept records in bureau drawers in bedrooms or cupboards in dining rooms.

California Survey

The Technical Committee, Western Regional Housing Project W-8, believed that additional information on space requirements for farm and home business centers was needed to guide those responsible for designing farmhouses. A questionnaire was therefore prepared and distributed through the assistance of home advisers in California, Montana, and Washington. A total of 976 returns received from 19 counties in California and from the other two states were believed to reflect space and equipment preferences for business centers for farm homes for these areas as a whole.

Findings

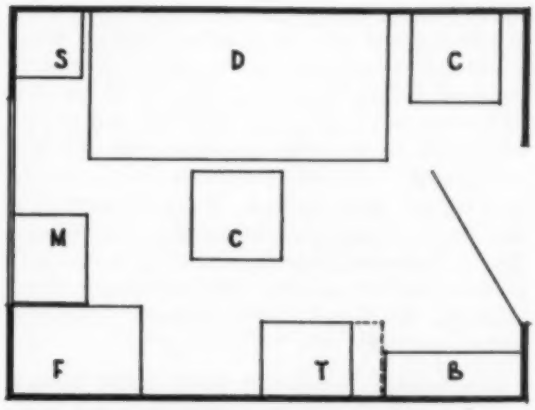
A single center. A farm and home business center was found in the homes of 40 per cent of the respondents. For the other 60 per cent, storage facilities were widely scattered throughout the house, and conferences were seldom conducted

[1] Western Regional Housing Project W-8.

where the business writing was done. Eighty-six per cent replied "yes" to the question, "Is your farm and household business conducted in the same place?" It was the consensus that these two activities should be conducted in a single center since 50 per cent of the homemakers worked with their husbands on household business and 41 per cent on farm business. Equipment needs were also found to be similar, thus encouraging a single center.

Equipment for farm and home business. Equipment used for farm business by more than one-third of the respondents included: desk, table, filing case, file box, telephone, and typewriter. Equipment desired for farm business by more than 42 per cent of the respondents included: large flat-top desk, filing cabinet, floor lamp, typewriter, 3 or more large drawers, and an adding machine. Bookcases or bookshelves were considered essential or desirable by less than one-fifth of the respondents. The majority would keep reference material in a filing cabinet, cookbooks in a kitchen cupboard or drawer, and current reading matter on tables. As more than one-half of the respondents did not keep insurance policies, wills, deeds, and other valuable papers in a safety deposit box, the need for a safe or lock box is greater than was indicated by respondents in their answers to the question of equipment desired.

The questionnaire gave the respondents opportunity to give specific dimensional requirements for various business activities, but few were able to be that specific. Therefore, a market survey was made of the sizes of equipment which would meet the general requirements given by those answering the questionnaire. A fair degree of standardization of sizes of the equipment was found to prevail among the desks, files, posture chairs, typewriters, and typewriter tables sold in retail stores, mail-order houses, and office equipment establishments. Common sizes of equipment meeting the general requirements derived from the questionnaires were next chosen for test purposes. The figure gives an arrangement for a farm and home business center which proved comfortable, convenient, and efficient. The proposed total area of 6½ x 8½ feet provides space for a desk 30 inches deep x 60 inches wide x 29 inches high with one drawer 12 inches deep to accommodate file folders, four drawers each 6 inches deep, and a center drawer of 4-inch depth; two chairs 18 x 18 inches; two stands to accommodate a typewriter and a calculating machine; a four-drawer file 26 x 18 inches; a safe 13¾ x 13⅜ x 12 inches; and a bookcase



PROPOSED FARM AND HOME BUSINESS CENTER

Office dimensions: 6½ x 8½ feet

B Bookcase	9 x 27 inches
C Chair	18 x 18 inches
D Desk	30 x 60 inches
F File	26 x 18 inches
M Calculating Machine Stand	15 x 18 inches
S Safe	13¾ x 13⅜ inches
T Typewriter Stand (plus drop leaf)	15 x 18 inches

27 x 9 x 60 inches. The suggested desk width was ample to permit space for a desk lamp.

The proposed stands for both typewriter and calculating machine were equipped with casters, making it easy to move them to other working positions. The swivel desk chair, also on casters, enabled the worker to turn from the desk to the file or to use the calculating machine or the typewriter without rising from the chair. By the use of a typewriter stand with a leaf which ordinarily was kept closed, file drawers could be opened fully without shifting the position of the typewriter stand.

On occasions when more space was needed to do filing from the front of a completely opened file drawer, the typewriter table could be moved easily to the front of the bookcases. The leaves on the stand used for the calculating machine were kept down as the room was being tested, since 18 inches was sufficient space for free movement of the carriage. The position of the chair allowed it to be moved backward or forward 15 inches, adequate space for individuals of average size. The arrangement given in the figure was dictated by the size and position of the door and windows. Radiators might also affect the arrangement. The space required by the business center illustrated in the figure is a minimum for the equipment used, totaling 55 square feet of floor space in the farmhouse.

Location of farm and home business centers. Where business was not conducted in an office, it was most commonly done in the living room in the western farm homes. As many as 89 per cent of the respondents preferred that farm business be conducted in an office or den, although this arrangement was considered less important for carrying out home business. It was interesting to find that this preference for an office was not confined to holders of large farms nor was it especially characteristic of any one type of farming. Considerable difference existed between preference and present use.

Conclusions. Farmhouse plans should include one area suitable for conducting farm and home business. If possible this area should be a separate office or den with at least 55 square feet of floor space. If a separate room is not feasible, the kitchen, dining room, or living room could be designed to provide space needed for a business center. However, this arrangement is considered less satisfactory than the separate room by western farm families.

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Edison Foundation Announces Mass Media Awards

The following report is from Marian Abbott of the American Can Company, New York, who represented the AHEA at the awards presentation dinner in New York on December 3.

The Thomas Alva Edison Foundation presented its 1956 award for the "Film Best Serving the National Interest" to *Moby Dick.* Mary Pickford, a Foundation trustee, who presented the Award, described *Moby Dick* as a "magnificent motion picture that says great things about America's past."

The Edison Awards Program is designed to improve the quality of mass media offerings, particularly as they affect juvenile audiences and interest boys and girls in sciences. The Foundation announced that this year 41 national organizations voted to make the final choice of winners, and a total of 62 organizations are co-operating in the awards program.

Other awards were presented to:

Television—*Wide Wide World* (NBC) as "The Television Program Best Portraying America"; *Disneyland* (ABC) as "The Best Children's Television Program."

Films—*Moby Dick; The Great Locomotive Chase* as "The Best Children's Film"; *On the Threshold of Space* as "The Best Science Film for Youth."

Radio—*CBS Radio Workshop* as "The Radio Program Best Portraying America"; *No School Today* (ABC) as "The Best Children's Radio Program"; and *Adventures in Science* (CBS) as "The Best Science Radio Program for Youth."

Station KRON-TV of San Francisco, California, was named "The Television Station that Best Served Youth" in 1956 and Station WOWO of Ft. Wayne, Indiana, "The Radio Station that Best Served Youth" in 1956.

Charles F. Kettering, president of the Edison Foundation and the principal speaker at the awards dinner, appealed to the communications industry to use its tremendous influence on American youth to make careers in science and engineering seem desirable to them in view of the dangerous shortage of trained scientific manpower now facing the United States.

The Life Cycle and Its Diet

A Symposium on Recent Findings in Human Nutrition

The following survey of research covering lifetime nutritional needs was presented at a joint meeting of food and nutrition and social welfare and public health sections at the 1956 annual meeting of the American Home Economics Association. On the following day the two sections met jointly again to discuss practical applications of the research findings in their areas of work. The papers are published here in order that all JOURNAL *readers may share them. Reprints of this symposium and the reference lists will be available from AHEA.*

STARTING THE CYCLE

Helen A. Huntscher
Chairman, Department of Home Economics
Western Reserve University

One of the greatest mysteries of life is the power of growth, that harmonious development of composite organs and tissues from protoplasmic cells, with the ultimate formation of a complex organism with its orderly adjustment of structure and function . . . Development, growth and vital capacity all depend upon the availability of food in proper amounts and proper qualities.

Russell Henry Chittenden (*1*) made this statement almost 50 years ago. It is a keynote of this discussion and a long-lasting challenge in the nutrition and health fields.

In the beginning of the life cycle heredity and speed of development are predominant (*2, 3*). Concepts of child development and nutrition are inseparable. Specific statements of nutritive needs for a prototype in physiological stress, such as pregnancy or lactation, or definite age levels of children are impossible in a developmental approach. Failure to look at what *has* happened, what *is* happening, and what *usually* happens within individuals, *could* lead actually to selecting certain data to show, ridiculously, that temporarily man, woman (non-pregnant and pregnant), infant, and child need the identical amounts of some elements! It is essential to look behind data in every study to get a perspective. True appreciation of data on food needs must include consideration of genetic factors, nutritive background, quantity and quality of food, scales of observation in both type and time, growth rate, degree of ability to utilize, individual variability (both inter- and intra-), as well as the measurements collected on individuals in a given stage or age.

It is highly desirable, even Utopian, for the human life cycle to be studied continuously by many sequentially applied methods. Realistically, however, it has had to be evaluated in diverse manner, from data on "man-made compartments" of varying lengths of observation, and on subjects in various chronological ages and biological states. The life cycle scope has been achieved by mentally patching together observations by various methods on entirely different people and by massing snapshot views with some of cinema technique in order to envision the plan of life process in living, functioning individuals. Sometimes the fascination with each compartment of years studied in chronological age has interfered with the thinking and understanding that life processes of each individual involve *sequential* changes and that each phase is *consequential* to the succeeding. Actually, nutritive needs are dictated by the ebb and flow of processes, and failure to meet these needs limits the expression of potentialities.

One of the changes in points of view for many workers in the field during the past 20 years is the acceptance of the fact that individuals do and should have unique metabolic and growth trends (*4, 5, 6, 7, 8, 9*). These are dependent upon inheritance (including hormone control) and environment (including background of nutritional processes). Longitudinal studies have revealed the variability of the bodily processes, among individuals and within each individual (*10, 11, 12, 13, 14*). In such studies, longitudinal, repeated measurements are made on the same individuals as they live week by week, month by month, and year by year over a considerable span of time. Wide ranges of individual differences in the various pathways of development are known to occur by study in sequences (*15, 16*) rather than to find individuals proceeding all by one pattern with grudgingly accepted deviations from the "average." Furthermore, there has developed from the longitudinal studies the evidence that successive previous events in metabolism and growth may influence succeeding measurements secured on the individuals (*7, 15*).

Time in the living process (biological age) and adequate duration of the observations may be more important than the chronological age or the largeness of numbers of isolated short-time evaluations of status for learning about continuous processes in change. Appreciating the entire growth cycle is essential to the comprehending of any portion of it.

Beginning the Child's Nutrition

Kirsten Utheim Toverud, MD, of Oslo, Norway, devoted her professional lifetime to investigation and clinical application of nutrition to the well-being of mothers and children. Her working hypothesis was: "The child is nutritionally nine months old at birth." She elaborated (*17*) by saying:

> If mothers were in a nutritionally adequate condition prior to conception and received an adequate diet during pregnancy and lactation, supported by sound medical guidance throughout, maternity would be less hazardous and children would be more apt to receive their rightful heritage.

A report from the Metropolitan Life Insurance Company (*18*) is of over-all importance:

> The recent tendency toward early marriage and parenthood has brought health problems of family life to an increasing proportion of teen-age girls. About one-third of our brides and about one-fourth of the mothers bearing a first child are less than twenty years old. Almost six per cent of the deaths among eighteen and nineteen year old girls in the insurance experience were due to pregnancy and childbirth. The record shows clearly that most of the immediate threats from disease to lives of teen-agers have been removed . . . Many youngsters, particularly girls, show the effects of poor dietary habits.

The stresses of gestational processes may be added to those of incomplete growth as well as to those unfilled needs during childhood. In other words, a woman already in poor nutriture at the onset of pregnancy may establish immediately a conditioned deficiency. For example, the calcium accumulation of two women in the last 65 consecutive days of pregnancy illustrates the difference in metabolic response dependent upon body condition of reserves (*11*). An 18-year-old primipara with a known unsatisfactory nutritional background stored in her body (by balance studies) 46.3 grams of calcium during the total of the last 65 days of pregnancy. On the other hand, a woman of good nutriture stored only 24.7 grams during the same period of pregnancy. The diets were similar as was the period of metabolic stress, but the responses were different because of inadequacies during previous months and years on the part of the 18-year-old. It was fortunate for the young mother and her child that the food became more abundant when the need was at a maximum. According to our ever-increasing evidence of inadequate food intake in adolescence and in women before pregnancy, this case is an important example (*17, 19*).

It is possible that the positive retentions of N, Ca, and Fe found in many studies in early pregnancy through isolated balances indicated the maternal body reconditioning or building reserves (*8, 12, 13, 14, 20, 21, 22*). This early storage was advantageous because the sampling balance studies in late pregnancy frequently showed retentions below fetal need at that time. It is probable that the maternal organism can enrich itself sufficiently in early pregnancy to take care of the tremendous growth and development of the fetus from these reserves in the last six to ten weeks in utero.

Furthermore, we do have evidence from longitudinal balance studies that reconditioning by continuous storage of minerals (*10*) and nitrogen (*23*) is possible in the adult male when the diet is changed from inadequate to adequate. On this principle, the woman's body can be prepared, if needed, by preconceptional attention to an abundant diet in constituents essential for structure and function with calories to protect the protoplasmic structure and to result in "ideal weight."

Nutrition in Pregnancy

Tompkins' (*19*) recent contributions and summary statements on nutrition in pregnancy have brought out pertinent principles about nutriture of women at conception in terms of body weight status which reflect nutritional and physiological background of years previous, namely, obesity and underweightness. Each state presents different problems of nutrition; in fact, Tompkins emphasizes that evaluation of each individual's status is essential for good prenatal care including nutrition.

> Unfortunately, little consideration has been given to the underweight patient, nor to the patient who fails to gain. The increased risk of toxemia and other catastrophes in the obese patient has received a great deal of attention. Our studies suggest that markedly underweight patients also have a greater than average incidence of toxemia and a markedly increased probability of a premature baby.
>
> The markedly underweight person is obviously not receiving a dietary intake sufficient to maintain standard body weight, and is certainly lacking in the essential nutrients necessary for the support of normal body function. It is reasonable to assume that if adequate nutrition is necessary for the maintenance of non-pregnant normal body function, the successful support of pregnancy will require an added intake of essential nutrients. It is equally reasonable to assume that this increase in essential nutrient intake cannot begin at a period in pregnancy when a catastrophe is about to occur, if adequate protection is to be obtained.

Tompkins (*19*) emphasizes the well-known fact reviewed by several (*2, 3, 4, 17, 24, 25, 26, 27, 28*) concerning the outstanding importance of the *first trimester*. He says,

> It is particularly unfortunate that the *first trimester* of pregnancy has been essentially disregarded. It is during this period, the formative period, that the status of the fetus and the placenta is established. Although a normal pattern of weight gain during the early weeks of pregnancy will not in itself guarantee protection to the patient and her infant, abnormal patterns do indicate later catastrophe, if these early warnings are disregarded.

It is customary to pay particular attention to enriching the diet of the pregnant woman during the second trimester, or at the midpoint of gestation. This may seem justified on the basis of some evidence concerning the amount of nutrients needed by the fetus (*24, 29*) and its general gross growth rate. However, the previous discussion with the addition of Tompkins' statements indicate that a longer view in life and attention to diet early in pregnancy and before are requisite for an optimal outcome of mother and child.

In this Tompkins' study (*19*) it is interesting to note that the babies of the underweight mothers were

shorter by 1.4 cm than those of the standard-weight group although the women had practically the same body height. The babies, on the average, of the 20 per cent or more underweight women were 11 ounces lighter than were those of the standard-weight mothers. It had been found, however, that the average or greater gain in weight by the underweight women had decreased the proportion of prematures (5.5 pounds or less at birth). Relationship of the newborn weight to the status of the mother has been a matter of record for some years (*30, 31, 32, 33, 34, 35, 36, 37*).

The average weight gain through the gestation period was lowest for the obese women, but it was highest for the women 20 per cent or more below standard weight for height. The accountable weight gain in pregnancy, baby, placenta, and fluids approximates 18 pounds. This tissue must be derived from essential nutrients and from adequate calories to meet the energy needs of the woman and developing fetus. Tompkins says:

> It is evident from these data that a low gain in weight during pregnancy by obese patients does *not reduce* the size of the baby, and a relatively high rate of gain in weight of the underweight mothers does *not increase* the size of the baby (*19*).

Toverud, Stearns, and Macy summarized the important principle as follows:

> The prematernal period in which the body develops its potential for child bearing also must be considered a segment of the reproductive cycle and a factor of major importance in relation to maternal and infant nutrition. The stores of some nutritional factors in the mother organism prior to pregnancy have been shown to be of great importance to the future health of the mother and child (*17*).

The outstanding and convincing clinical-nutritional studies of Ebbs and Tisdall *et al.* (*38, 39*) showed that women on adequate diets

> enjoyed better health, had fewer complications and proved to be better obstetrical risks than those left on the poor prenatal diets. The incidence of miscarriage, stillbirths, and premature births in the women on poor diets was much increased. The incidence of illness in the babies up to the age of six months and the number of deaths resulting from these illnesses were many times greater in the Poor Diet Group.

Burke and Stuart (*30, 31, 32, 33, 40, 41*) at Harvard University have demonstrated positive relations of the excellence of the diet with the well-being of the mother, the size of the infant as well as the condition of his bones and teeth. Their contributions to this field are outstanding.

More recently the publications of Macy and Moyer (*25, 36*) on the "Physiological Adaptation and Nutritional Status during and after Pregnancy" have shown the trends of blood values of women throughout pregnancy and in relation to nutrition. Indications are that the duration of the inadequacy of food intake for years previous may have far-reaching effects.

Dieckmann, Turner, *et al.* (*42*) found a positive relationship between the high protein intake during pregnancy to the excellence of the baby at birth and that the total adequacy of the diet was an important factor.

The Toveruds (*43*) had demonstrated clinically in Oslo what they had found through research, namely, that excellent prenatal care including better nutrition resulted in better health of mothers and babies, increased power of lactation, better dental status, a decrease by 50 per cent of stillbirths and neonatal losses, and a descending occurrence of prematurity.

In this brief review, "reproductive wastage," mortality statistics and deformities have been omitted purposely; however, their importance to this topic is great and should not be disregarded.

Chemical evidence of growth and nutritive needs of women by balance studies in the reproductive cycle are difficult and expensive. It is unfortunate that we do not have complete and sequential metabolic studies on a series of women with known nutritive backgrounds from conception to delivery and postpartum through lactation for quantitative nutrition. There are only two such studies continuously throughout the last half or more of gestation from the 110th and 135th day of that period. The longer was reported in 1910 by Hoffström (*21*) and the other by Macy and co-workers in 1936 (*12, 14*). The two longitudinal records of the rate of retention in sequential study show a continuous but variable storage of minerals and nitrogen within each individual. There was no increase in amounts of nitrogen nor minerals retained as term was approached whereas the fetus accumulates elements rapidly just before birth. Charting the continuous balances of our subject as background with the many isolated balances from the literature, one is challenged by the extremes of retention data. It is evident that these isolated studies reveal the usual response to changed dietary regime rather than the trend of a continuing metabolic need. It is questionable whether an average of such isolated figures en masse can be translated into the possible metabolic trend of individuals.

Long-Time Influences

Watson and Lowrey (*3*) have summarized the development of the child and his systems briefly but helpfully. For just one example, they point out the rapidity of growth in the embryo. Increase in "sitting height" is 1 millimeter per day during the second month and averages 1.5 mm per day thereafter. "In comparison, a ten year old child who had continued to grow at the rate of 1.5 mm a day would be twenty feet tall."

Before discussing the rapid growth of infants and consequential large nutritive needs per unit body weight, it seems pertinent to describe the successive stages of some invisible phases of growth of the fetus which carry over from pregnancy into infancy and

childhood not only in structure but in function. They are, of course, largely dependent upon nutrition.

The tooth buds of ten primary teeth are apparent about the sixth week of fetal life. Calcification of the 20 primary teeth begins between the fourth and sixth months in utero. Tooth germs of some of the permanent teeth appear as early as the fifth month of uterine life. Watson and Lowrey (*3*) and Shaw (*44, 45*) have fascinating presentations of the chronology of human dentition which alerts one to the long-time thread of importance of sequence and consequence of quality development and the influence of nutrition.

One important illustration is the ten-year period for the development and maturation of the six-year molar! The need for continuous and excellent nutritional condition during pregnancy, infancy, and childhood is evident (*45*). Dental tissues need all of the nutrients of the "basic foods" with the addition of vitamin D and fluoride.

Another specific long view of sequence and consequence dealing with prematernal and prenatal periods and infancy concerns iron needs. The supply of this element in the new-born is dependent upon the status in iron of the woman before as well as during pregnancy, the length of gestation plus the placental blood allowed to reach the infant at delivery. The high peak of storage in the fetus comes in its last six weeks of intra-uterine life and is dependent upon the maternal reserves, intake, and absorption, as well as status. It follows that the premature infant does not profit by the last high rate of iron storage but, on the other hand, has a great need for growth (*46*). Coons et al. (*20*) showed that women may retain in early pregnancy as much as the calculated fetal need in the last six weeks. Is this evidence of poor maternal stores followed by repletion of them in early pregnancy or enriching of the mother's reserves?

The infant born at term of a healthy well-fed mother will maintain a good hemoglobin level for at least six months if it is free from infection (*46*).

Adequacy of Food Intake

With the infant itself at hand for direct observation there are means available for measuring his progress toward maturity and observing some factors influencing his growth. We may know partially about his genetic and nutritional endowment, and we may usually have a qualitative rather than a quantitative account of his food intake (*26, 47, 48*).

The test of the adequacy of the infant's food is in his progressive growth, development, and general well-being. The evaluation of these is in the realm of the physician as is the prescription of the formula, if not breast fed, for each infant plus the supplements of vitamins and foods (*28, 46, 48, 49, 50*). Sometimes parents are worried that neither the growth rate nor the food is standardized for all babies in their acquaintance of the same chronological age. As Washburn (*15*) in a paper entitled "Diverse Attributes of Healthy Children" says,

There is a great deal of variation between individuals during healthy growth but that any one individual has his own peculiar characteristics which tend to make him stay within one portion of the whole wide zone even though he shows a considerable fluctuation from time to time.

It is considered important in evaluation of progress that a child is consistent with himself as well as in his relationship to the trends of other similar children than it is to determine if he is of "normal weight" (*51*). Babies of different levels of birth weight generally (80 per cent) maintain their relative positions throughout three months (*52*) and the first year (*37*). It is interpreted that the constitutional determinant of size is reflected.

Some general patterns of changes in growth from birth to maturity indicate what is to be accomplished. When it is realized that during the growth period (*27*) the head doubles in size, the trunk triples in original size, while the arms grow four times as long and the legs five times as long, the feeding of adequate nutrients to provide for such alterations in structure and the metabolic ability to effect these changes becomes a supreme challenge to nutritionist, family, and the physician (*53, 54, 55*). The nutritive needs in all constituents is the greatest per unit body weight for all life (*49*) in infancy; they decrease slowly thereafter. The rapidity of tissue synthesis and of increase in size continues into infancy from the prenatal period and deceleration of gross growth rate is obvious after infancy for a decade.

If the period up to four years alone is considered we are convinced of tremendous responsibility not only of providing the food for the baby but of the psychological management for its consumption as he grows as a "whole child." There are wide individual differences in the growth trends of individual children (*51, 16*).

Feeding the Baby

Breast milk is the choice of most pediatricians for the food of the new-born (*34, 47, 48, 50, 56*). Jeans (*48*) states:

Human milk is the ideal food for the young infant, supplying all the nutrients essential for the early period with the exception of vitamin D. When human milk is not available, cow's milk is used in substitution.

The true ability of the mother to secrete milk depends to a large extent upon her nutriture preceding and during pregnancy and lactation. Adequate substantiation is in the literature (*13, 26, 39, 43, 57, 58*). A most recent report (*59*) concerns Australian women where the custom is strong for breast feeding.

A consistent correlation between duration of lactation and the level of maternal diet previous to and during pregnancy was found.

In any type of feeding the individual baby's well-being is the criterion of the kind of food, the proportions used, the amount offered per feeding as well as the interval between feeding. Here again the physician

relies upon the growth progress of each infant as the criterion of his food. In fact, two major signs of the need for more food are failure to gain in weight or even loss and signs of hunger, as crying and searching movements with mouth and hand-chewing soon after the last feeding. As all know who have practical experience with babies, they will take the amount they want (perhaps it is based on need) and no more, be the milk from breast or bottle (*28, 48, 60*).

It is a demonstrated fact that in general the artificially fed baby retains more nutrients and grows at a faster rate than the thriving breast-fed infant. Of this situation Jeans (*48*) said:

> The significance of these differences in body composition is not clear. One interpretation could be that a wide range of normal exists and that differences are of no great significance. The period of time during which the differences exist is short compared to the life span. The differences disappear soon after the differences in diet cease to exist.

Stearns (*61, 62*) pointed out that the bones of the full-term, robust new-born are almost completely filled with cancellous bone. The marrow cavity develops later. This lends support to the theory that the rapid bone growth is partially provided by the rich storage during prenatal life. This is applicable to adequate bone growth in the breast fed. Such a situation exists regarding iron storage and utilization in either the breast or artificially fed infant.

Linear rate of growth of the formula-fed baby is related to the high calcium retention and is regulated in part by the amount of vitamin D.

> On the other hand, the breast fed baby has excellent linear growth despite a much lower calcium retention and gains at a rate definitely greater than that of the artificially fed baby who has the same calcium retention (*48*).

The muscle mass of the breast-fed is less than that of the artificially fed, but Jeans evaluates that:

> No disadvantage seems to accrue to the breast fed baby because of the lesser amount of muscle.

Consideration of György's (*56*) "A Hitherto Unrecognized Biochemical Difference between Human Milk and Cow's Milk" may reveal some explanation.

The needs of the mother during lactation for furnishing adequate quantity of milk of high nutritive value have been investigated to a considerable extent by Macy and co-workers over the years (*17, 63, 64, 65, 66, 67*). A diet which has approximated the Recommended Dietary Allowances (*49*) in preconception, in pregnancy, and lactation appeared to furnish the fast-growing infant with sufficient nutrients to satisfy the needs and to nourish the maternal body adequately (*17*).

Whether the infant is breast or bottle fed it is the accepted practice for the physician to prescribe the inclusion of various common foods in the puréed form which the infant's developmental stage permits. By ten to twelve months the baby is consuming most common foods and certainly the basic food groups in appropriate forms and seasoning (*3, 17, 28, 46, 47, 48, 50, 60*). The success of the acceptance of these foods and the building of a large "food vocabulary" is extremely important but, on the other hand, may be the crux of nutrition for years to come as the infant goes through childhood to adulthood (*27, 28, 47, 48, 50, 51, 60*).

Nutrition and Growth

We know a great deal about how children grow and we know a great deal about what they eat, but we lack in the combination or relationship of the two as life and growth progress in sequential and consequential evidence (*7, 53*). Securing the quantitative and qualitative relationships of food to body increment necessitates long compartments of time. Sometimes short dietary studies and growth status records have given excellent clues (*51*). Evaluation of the adequacy of food, along with all life's experiences, has been done, in some cases, by roentgenographic evidence and estimation of bone structure and advances toward maturity (*7, 27, 49, 51, 68*).

Certain child research centers have and are making contributions to our general understanding of the relation of nutrition to growth. We shall expand our knowledge tremendously when the longitudinal studies are reported in full by the Merrill-Palmer School staff, by Stuart's group at Harvard University, by Macy and co-workers from the Children's Fund of Michigan, and by Washburn's team at the Child Research Council and the University of Colorado School of Medicine. The life-time development and the dietary intake histories will answer much of our hungering for knowledge. The progress reports of the dynamics of growth and development and the individuality in growth and food intake are challenging. Preliminary reports are indicating wide ranges of intake as well as growth for these healthy growing children.

There is variation in the *rate* of accumulation of body building materials among individuals of the same age, body size, and living conditions (*6, 7*); there are individual trends in growth of parts of the body (*4, 7, 16, 27, 44, 51, 61*). Furthermore individual children vary in their own retention rates while they are being studied continuously on a constant diet (*6*).

With accumulated knowledge on calcium retention rates and growth trends in children the challenging chart of Holmes (*69*) with its average growth needs through the years from birth and the individual and isolated balances from the literature is really understandable. The balance studies of the short duration of 20 days were on individual children with various backgrounds of growth rate and potentials, of nutritive stores and variable retentions due to individuality, and usual fluctuations or temporary response to changed intake and emotional reactions (*8, 70*). It is no wonder that the differing scales of observation did not seem to fit each other!

The Holmes chart carries much of value for our *interpretations* of balance studies. It shows the varia-

bility of the many individuals in progress to their goals of full growth and maturity, in relation to their past nutriture (*7, 70*), growth impulse *at study*, not only diet but current change in it, at the time of study for that period. Balance data indicate the present flow of nutrients not *growth rate* unless we study continuously as the child grows (*7, 70*).

Individual responses in rehabilitation following poor nutriture may differ with individuals and, moreover, be dependent upon degree, duration, and resultant effect on tissues and functions of individuals (*7, 10, 11, 70*). Stearns (*70*) studied the rate of calcium retention in children with good and with poor nutritive backgrounds of long standing. She found an apparent decreased efficiency of the gastrointestinal tract in the poorly nourished to absorb calcium during the first five months on an adequate diet, thereafter the retentions rose to the typical level in the group for the current growth rate. To what extent such different individual responses are recorded in the literature by short-time studies is unknown.

To relate adequacy of food intake to body growth, balance studies must be carried continuously on individual children long enough to be related to measured changes in anthropometric advances such as height and weight increments. One example of this in 10 children month by month for 8 months shows the relationship of calories and protein intake to weight progress and nitrogen retention. Macy and Hunscher (*71*) showed the individual children's needs for calories to support the protein synthesis in month-long units in which weight can be accurately measured. Accumulation of tissue, construction of a pound of flesh, and growth trend are relatable in long enough periods of time to observe accumulation of materials for tissue growth rather than transient rates in response to changes of metabolism or food intake.

We are, in this field of nutrition, seeking to know to what extent the feeding is providing adequate constituents for the construction of the body as it grows in its functioning individual way. The importance is in enough of the constituents, measured by balances or otherwise, to influence growth rather than the amount per se in a given chronological age period in the average child.

Our group at the Children's Fund of Michigan (*7*) studied on the basis of giving each of ten children a definite quantity of food each day, adequate as far as we knew to meet fluctuating physiological needs, then measured the quantities of nutrients stored over a continuous period of eight months. The balance studies were sequential on children from four to eight years of age. They had a prefeeding period of three months as an optimal diet to "standardize" them for measurement of nutritive growth needs.

> As the study proceeded the children, regardless of age or size, showed less variation from each other and they all became more alike in the amount of calcium they were able to retain daily. Since the study was carried for only eight months it is not known whether the subjects would have become even more nearly alike in their selective retention of food constituents, and therefore, in their daily retentions of this element, irrespective of size. . . . There was not only stabilization of the daily retention of calcium but also there was a gradual increase in average quantity retained by the group as the months passed.

Such a pertinent finding could come only from a constantly sequential observation over months.

Many splendid reviews of the nutritive needs and feeding practices are in the literature (*27, 28, 40, 47, 48, 49, 51, 60, 62*) for pregnancy and the first decade of life. There seem to be no startling changes in specific food needs in them except for stressing that needs must be answered in the optimum during adolescence and throughout pregnancy and during subsequent growth. A better understanding of the physiological effects in growth and development trends as life moves on in individuals is needed rather than by chronological compartments (*4, 16, 27, 51, 72*).

A simple statement of principles of the total diet rather than by individual constituents at certain times is important as we recognize the values of interrelatedness. The total adequacy of the diet during growth, including pregnancy, can be generalized to take care of individual needs and changes in rate of growth. The first requisite is calories sufficient to promote the rate of body gain for the functional period and for the individual's potentiality of total body trends. Next in importance is protein furnishing about 15 per cent of these adequate calories and bearing a sufficient amount and distribution of essential amino acids. Geiger's (*73*) statement is important at this point:

> Protein cannot be utilized for growth or maintenance nor can it prevent breakdown of tissue protein when the diet does not provide satisfactory quantities of other energy sources such as carbohydrates and fats. This happens because *energy requirements* of the organism have to be satisfied *first*.

This was shown in pregnancy by Oldham and Sheft (*74*), in childhood by Macy and Hunscher (*71*), and in rehabilitation by Holmes *et al.* (*23*).

Geiger (*73*) calls for the remainder of the array of nutrients for growth process in this way:

> Obviously, protein synthesis, growth, and repair can occur only when the organism is supplied with other essential nutrients such as vitamins and some inorganic substances.

Although this is not the place nor is there space to review the functions of all the vitamins and minerals, it is appropriate to state that these substances have their influence in the body, in its tissues and cells. Wherever and whenever the rate of tissue synthesis is rapid per unit body weight or in toto, the need for these regulators of cell metabolism is increased above maintenance requirements. Rapid growth rate of tissue is evident in pregnancy and infancy, then it slackens thereafter in pre-school and pre-adolescence; however, in growth all needs are greater than adult status quo and must be furnished. Aside from common food, certain nutrients should be provided in some way, namely, vitamin D, iodine, and fluoride (*27, 51*).

General principles of the adequate diet promote acceptable increase in weight for the individual for his particular growth pattern (including pregnancy), quantity and quality of protein and minerals for structure and function, as well as some minerals and vitamins for regulatory mechanisms within the body cells. Exact figures of need cannot be given for individuals but the growth and well-being are objectives we seek (*49*). The figures in the Recommended Dietary Allowances were not intended to be used with rigidity of interpretation; rather, "when applied to individuals or groups, they must be judged by the effects on the person involved." They include an assessment of the probable physiological requirement.

To relate growth and amounts of nutrients needed to support each individual's potentialities, we need to observe groups of "normal" individuals with known constitutional and nutritive backgrounds over a sufficiently long period of time to measure change in body growth. Along with this we need to measure sequentially or accumulatively as many constituents as possible which go to make up the body growth and function in those growing tissues. Relationship of developmental changes which take place sequentially as increases in size of structure and function is requisite. A group of subjects, carefully selected and of the same chronological age, may differ greatly in heredity, previous environment including food and body status, health and care, as well as growth potentials.

Washburn (*16*) has stated most aptly the theme I have tried to set forth in this review of pertinent interpretations and philosophy of feeding in "Starting the Cycle" as follows:

> We need less emphasis on the mere measurement of status at a given moment, or age level, and more emphasis on the doing of the organism—more emphasis on what the child is becoming as well as on the "how" and the "why" of the "becoming." The more one considers the striking differences between children, together with the equally striking tendency of each to follow consistently his own pattern of progress, the more one realizes the need for following every child long enough to evaluate the significance for him of his particular characteristics and of the pattern by which he grows.

A summary statement is needed as only T. Wingate Todd (*75*) could word it:

> The adult physical pattern is the outcome of growth along lines determined by heredity but enhanced, dwarfed, warped or mutilated in its expression by the influence of environment in the adventure of life.

[See pages 113 to 114 for references.]

NUTRITION IN ADOLESCENCE

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The period of adolescence covers fewer years than does either of the other two age groups in the life cycle. It is probably, however, the most eventful period physically, biologically, and emotionally. Perhaps only being born can compare in eventfulness with this period of transition and growth.

From a chronological standpoint, we call the members of this population group *teen-agers*. It might be more accurate to call them *tween-agers*. They are neither children nor adults. They are betwixt and between the period of childhood dependency and adulthood independence, between the time when life is controlled by adults and the time when they must assume independent responsible status.

Characteristic of the tween-age period is the accelerated growth rate and the imbalance in the rate of development of various parts of the body. For some or many, the tween age is a period of emotional extremes, relative instability, and turmoil. All of these factors have their effect on the intake, absorption, and utilization of the food necessary to meet the nutritional requirements.

Certainly nutrition is one of the most important considerations in the tween-age period. Quantitatively the nutritional requirements of the boys are higher than at any other age. The requirements of the girls are higher than ever before, although not so high as they will be during pregnancy and lactation.

Some of the recent findings about the nutritive adequacy of the diets of tween-agers come from summarizing selected results of three regional studies which include seven states—Maine, New York, Rhode Island, West Virginia, Iowa, Montana, and Idaho (*1, 2, 3, 4*). The best common denominator of these different studies was the data presented for the 15- to 20-year-olds. The nutrients protein and niacin were *least* likely to be in short supply in the diets of these youths. Ascorbic acid and calcium were the nutrients *most* often in short supply for both boys and girls, together with an equally low supply of iron for the girls.

A study has been made of the food intakes of several hundred Iowa school children from 6 to 18 years of age (*2*), and comparisons have been made with the National Research Council Recommended Allowances (*5*) for several nutrients. The mean daily protein intake for the 586 boys was higher at every age than the recommended allowance. However, there was less difference between the actual intake and the allowance for the boys over 14 years than for the younger boys. Among the girls the mean daily protein intake fell below the recommended allowance for those over 12 years of age.

For both boys and girls the intakes of calcium were

seriously below the recommendations, and again the girls had lower intakes than the boys. The mean intakes of the boys increased from the 14-year-olds to the 17-year-olds, but the opposite was true for the girls. The intake was the highest for the 12-year-old girls and then decreased for the older age groups.

Additional evidence of the decrease in intake of essential nutrients with increasing age comes from the eastern regional study (*1*). A comparison was made of the percentage of 13- to 15-year-old and of 16- to 20-year-old boys and girls who had intakes which equalled the recommended allowance for certain nutrients. In the same age groups, more boys than girls had adequate intakes, except for ascorbic acid. Then in different age groups, more 13- to 15-year-olds had adequate intakes than did the 16- to 20-year-olds. The one exception was the calcium intake of the girls, where 36 per cent of the 16- to 20-year-olds had adequate intakes as compared with only 31 per cent of the younger group.

Despite our aim to give credit where credit is due by recognizing the good nutritional intakes wherever they exist, it is a matter of grave concern to us when we realize that such a small percentage of tween-agers is being nutritionally well fed. For instance, less than 10 per cent of the 16- to 20-year-old girls had adequate iron intakes, and even among the somewhat better fed boys seldom did as many as 60 per cent receive the recommended allowance for a nutrient.

No discussion of tween-age nutrition would be complete without a consideration of breakfast habits. This is the meal most likely to be omitted by persons at every age, although its nutritional importance has been well established.

Nutritionally there is no substitute for a good breakfast. In Utah a study of junior high school students (*6*) showed that poor breakfasts usually remained uncompensated for throughout the day. Only one child among five with poor breakfasts made up the deficit in the other two meals. Also, in the eastern study (*7*) it was found that those who ate breakfast more nearly met the recommended allowances than those who did not. This was especially true in the case of ascorbic acid and calcium. Here also, the situation was more serious with girls than with boys. Poor breakfasts, which contribute little to the day's food needs, or no breakfasts were more prevalent among the girls than among the boys.

Consider some further "breakfast facts" from unpublished data collected at Oklahoma A and M College. The self-selected food intake of a group of 17- to 19-year-old college girls who lived in dormitories was recorded for four consecutive days, Monday through Thursday. After calculating the nutritive value of these records they were divided into two groups—those of the girls who ate breakfast and those of the girls who skipped breakfast. Omitting breakfast had the most serious effect on the intake of calcium and ascorbic acid, reducing them to only about 60 per cent of the recommended allowance. It also reduced the intake of calories, iron, and thiamine by about 10 per cent.

Of interest also was the percentage of the daily nutrient intake which was supplied by the snacks eaten by the girls who ate breakfast as compared with the girls who skipped breakfast. The first thing we noticed was how much more the girls without breakfast snacked than did the girls who ate breakfast. The girls who skipped breakfast received 18 per cent of their total calories from snacks as compared with 7 per cent for the girls who ate breakfast. The high proportion of calories to other nutrients in the snacks indicated that the girls who ate no breakfast ate more lone wolf or empty calories for snacks than did the girls who had breakfast. The girls who ate breakfast had an average of 421 calories per day from all types of desserts and 28 of these calories from snacks. The girls who went without breakfast had an average of 554 calories from desserts and 98 of these from snacks.

To almost every tween-age girl overweight is either a fear or a fact, and adults are largely to blame for this. Parents may not have given a girl the direction and opportunity to develop good food habits plus an understanding of the relation of food to health and weight. Also the tween-age girl observes how unsuccessfully the bulk of the adult population deals with its own overweight problem. She observes the tremendous appeal that fad diets have for her peers, and she may feel that by following a fad diet she is identifying herself with her peers.

From infancy the teen-ager has heard us emphasize the relation of food to size and strength. We have seldom mentioned its relations to gracefulness and rhythm, to smooth firm muscles, and restrained curves. It is no wonder then that a girl associates all food collectively with unwanted size and will reduce her food intake to a dangerously inadequate level to guard against obesity. Her exercise of will power is often commendable and puts many of us adults to shame; but unfortunately for her health, her will power exceeds her judgment.

A study of the activity and food intake of two groups of high schools girls, 28 of them obese, and 28 non-obese, and all of similar height, age, and grade has been reported by Johnson *et al.* (*8*). When their caloric intakes and activity records were studied, it appeared that on a statistical basis, inactivity was much more important than "over-eating" as a factor in the development and maintenance of obesity. Both groups were sedentary because the obese girls spent 90 per cent of their time in a combination of sleeping, lying still, or sitting, and the non-obese girls spent 85 per cent of their time in this way. Active sports or other strenuous activities accounted for the greatest difference in level of activity between the two groups and was significantly less for the obese group.

In presenting facts on tween-age food intakes the negative approach is customary—namely, how poorly they eat. The alarmist approach is used also, for

example, "Our starving teen-agers." Let us, as intelligent workers in the field, avoid the negative approach wherever possible. There are many well-fed teen-agers with good food habits. Let us remember there are more poorly fed adults in the world than there are teen-agers. There are more overweight adults, more followers of fad diets among us adults than among the tween-agers. In the academic approach it is necessary to understand the weaknesses in food habits so that we can repair them, but we must not assume that all is weakness. It is just as unfair to group all teen-agers together and bemoan their terrible food habits and poor nutritional status as it is to consider that all teen-agers contribute to juvenile delinquency.

To find ways to correct weaknesses is not our only problem. We also have the responsibility for recognizing and preserving the strengths, because from strength comes progress. I don't know whether we can say that the teen-ager "never had it so good," but I am sure that we can say we have never had such good teen-agers!

In any nutrition education program we must start from where we are. We are seldom where we wish we were in the matter of the food habits of any group we try to help. For the tween-age group, it is appropriate to recognize the tremendous advantage of arriving at these transition years with a set of good food habits. It seems appropriate also for us to recognize that good food habits at any age do not just happen. They must be planned for and nurtured constantly by the parents until the tween-ager himself can take over the responsibility for them. Children have rights, and one of these is the right to intelligent training toward good food habits. Self-selection, self-direction, self-demand—none of these terms as used in child rearing has meant to imply self-indulgence or self-destruction of health. It is one of the responsibilities of parents to guide and equip a youngster for living. Never have children needed food guidance as they do in our present complicated food world.

In any discussion of practical on-the-job use of new developments, we can learn of many ways first to understand and then to improve the food habits of our teen-agers. To mention just one problem, what for instance can we do about school lunches? Do we recognize that it is a mark of an adult to leave his place of business and to eat lunch elsewhere with his associates? The tween-ager wants to be an adult; therefore, often he wants to leave the school area with its elementary population and seek another place to eat where he and his associates are free of the school regimen. Is it fair to be critical of this? Perhaps we do need to be critical of the food choices available to him where he eats or critical of the standards of sanitation. Considering the fastidiousness of the tween-age group I am sure that no tween-ager likes a place better *because* it has low standards of food production but rather *in spite of* such standards. No doubt in such a place the social advantages outweigh the undesirable features. What can be done by the community, by the service clubs, by the owner himself to improve the place where the tween-ager wants to eat without destroying its appeal?

Our most successful ways to improve the food habits of the teen-ager will be those in which we can recognize the tween-ager for the fine person he is and wants to be food-wise as well as otherwise.

[See page 114 for references.]

ADULTHOOD

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The ultimate goal of all research in human nutrition is to *know* what constitutes an adequate diet for persons of both sexes, all ages, and under all environmental conditions—this diet to promote optimum health both physical and mental, to extend the productive years of life to the maximum, and to delay senility.

We are handicapped in several ways in our attempt to interpret research results. First, much attention in the past and present has been centered on the so-called normal person, and too often "normal" has been used to indicate yesterday's or today's average which may or may not be normal. Second, observations on so-called "normal persons" have been made with no attempt to relate these observations to food intake and/or food utilization. Third, observations have been of short duration in relation to the entire life span of man. We have records of food intakes for one day, or one week, or one month out of "three score and ten years." Or, we observe calcium balance for one week, hemoglobin values at yearly intervals, or single observations at five- or ten-year intervals. And finally many of the data have been obtained "piecemeal." One laboratory will center its interest on nitrogen utilization, another on calories, and a third on one or more of the minerals. King (*1*) has reminded us there is

> growing evidence that we must increasingly regard nutrients in terms of the total organism and the interplay or balance of all of the nutrients in the preservation of health on a life span basis.

Recognizing the limitations of all research which has been carried out in the field of human nutrition, we will attempt, *first*, to review the results of certain of these researches and, *second*, to draw those conclusions which seem defensible.

The science of nutrition had its real beginning in the energy studies of Lavoisier. The energy expenditure of man and the calorie value of food interested nutritionists until the turn of the century. Then the phenomenal developments in other aspects of nutrition —namely, the knowledge of vitamins, amino acids, and so forth—tended to detract the attention of the scientist from the energy problem. Now interest is once more being focused on the problem of calories. Keys (*2*) states

> for the world as a whole, the foremost problem continues to be one of calories. On the other hand, in a few favored areas like the United States, the opinion is developing that the most serious nutritional fault may be that of over-eating.

Calorie Intakes

The calorie intakes of adults have been investigated in many parts of the United States. From the data available on the calculated calorie values of recall diets from several areas, two facts are obvious. *First*, calorie intake tends to decrease with increasing years; and *second*, the intakes at all ages tend to be below the National Research Council's recommended allowances. Research reveals a third fact, overweight parallels low-calorie intakes in these same population groups. Of the 339 women interviewed by Burrill (*3*) (in South Dakota) nearly one-half were classified as overweight. Similar observations have been made on other population groups (*4*). This raises two questions: Are the calculated calorie intakes actually representative of the true food intakes or are they underestimations? If they represent estimates of the true intakes of these individuals, what factors influence energy expenditures in such a manner that actual energy expenditures are less than those predicted for these same individuals?

One laboratory (*5*) has reported calorie intakes obtained on the same women using both recall diets and weighed diets as a source of information. Seven of the 13 subjects ate 300 to 800 calories less on weighed diets than on recall. The lower calorie intakes on weighed diets appeared to result from decreased eating between meals.

Estimations of overweight usually have been made from standard height-weight tables. It is difficult, if not impossible, to determine the degree of overweight using this tool. Brozek and Keys (*6*) studied two groups of adult men of equal height, age, and weight. These two groups were classified into active and inactive subgroups. According to the height-weight tables, those in the active group were overweight. Studies on body composition, however, showed them to be somewhat underfat. This leads to the interesting speculation as to the desirability of constructing two height-weight tables—one for active individuals and the other for inactive individuals.

Protein and Nitrogen

The role of protein in the diet has been recognized since the name was first given to the nitrogen containing moiety of the diet by Mulder. In addition to its role in the building and repair of tissue, protein is important in the promotion of resistance against infection, in the protection it affords the liver, and in the sense of well-being experienced by most individuals whose diets contain a liberal amount of this nutrient.

Nitrogen intakes and retentions have been studied under a variety of experimental conditions. Representative studies indicate that the adult is capable of retaining nitrogen when an adequate amount of protein is available and that he tends to lose nitrogen from his body when protein intakes are low.

Results of nitrogen balance studies should be interpreted in relation to other factors which are known to influence nitrogen balance. One of these factors is calorie intake (*7*). Nitrogen (or protein) intakes which would appear to be adequate (as judged by N balance) at one calorie intake will be inadequate at a lower calorie intake.

The work of Mertz (*8*) and co-workers indicates that the amino acid composition of the food mixture determines its adequacy. Women on self-chosen diets exhibited negative nitrogen balance when intakes approached or even exceeded the recommended NRC intakes. The amino acid analysis of food composites of 18 subjects between 33 and 77 years of age revealed them to be adequate with respect to isoleucine, leucine, lysine, threonine, and valine. Phenylalanine occupied an intermediate position with respect to adequacy, but methionine seldom reached the recommended level of intake and in many cases was below the recommended minimum. This low intake of methionine was held responsible for the negative nitrogen balances observed on what seemed adequate protein intakes.

In an attempt to explain the differences observed in daily nitrogen balances of elderly women, Swanson *et al.* (*9*) have suggested that previous undernutrition with respect to protein may be followed by continuous deposition (positive retention) over a long period of time. If a short-term balance study were to be carried out on a subject after protein depletion, it is likely that positive nitrogen balances would be observed on any level of N intake in excess of that previously ingested. It has been demonstrated that less protein is required for N-equilibrium on a controlled diet than on some self-selected diets (*10*). For example, on a controlled diet eaten in prescribed amounts at regular intervals, 45 grams of protein was required for N-equilibrium. When the same subjects selected similar foods but ate when and in the amounts each desired, (*ad lib.* intake), 54 grams of protein was required for nitrogen equilibrium.

There appears to be no difference in the efficiency of utilization of this nutrient by younger and older persons. Chinn, Lavik, and Cameron (*11*), using labeled protein, observed the same rate of protein absorption and utilization by young subjects as by 72- to 88-year-old subjects.

No attempt has been made to assemble the vast

amount of available data relative to the average protein intake of adults. An extensive review of the literature seems to indicate that except for those who restrict their calorie intakes to 1200 calories or less, the majority of the adult population in this country will select at least 1 gram of protein per kg per day as long as money is available to purchase food according to food likes.

Fat Intake

While there is no physiological reason to study the intake or retention of fat *per se*, the relation of fat intake to adult nutrition has received considerable attention in the past few years. Fat represents the most concentrated source of calories in the human diet and is suspected of being the major offender in the development of obesity. The intake of fat has been associated with the concentration of certain lipid factors in the blood. These, in turn, have been implicated in the development of diseases of the heart and arterial system. Not only has fat intake *per se* been linked with blood lipids but the kind of fat—whether animal or vegetable—also has been implicated.

The relationship of serum cholesterol to fat intake can be illustrated by the study of 530 California men and women (*12*). When mean serum cholesterol levels of men were plotted against age, a downward trend was reported with each decade after the age of 60. Work from Key's laboratory (*13*) and Walker's study on the South African Bantu (*14*) confirm this. Gillum (*12*) reported a high sustained cholesterol concentration in the blood of women after a temporary drop between the ages of 55 to 59 years. She suggested that the drop may be related to a post-menopausal hormonal imbalance. Sex differences have been observed in response to fat intake. For example, a daily intake of 90 grams of fat by women resulted in cholesterol values similar to those supported by an intake of 130 grams of fat by men. These authors suggest that standards for hypercholesterolemia must be different for men and women.

Epstein *et al.* (*15*), who investigated the relation between diet and atherosclerosis among populations of different ethnic origins, believe that dietary factors alone are not adequate to explain their findings.

Garcia and co-workers (*16*) observed an apparent relationship in fat absorption and age: Older individuals absorb relatively larger amounts of neutral fat (rather than products of fat hydrolysis) than do younger individuals. A higher maximum number of chylomicrons was observed in the blood of older women than in younger women. If it is assumed that a smaller number of chylomicrons is desirable, the low-fat intake frequently recommended for older individuals has a physiological basis.

Work of Moore *et al.* (*17*) suggests that the blood lipid level may be altered by weight reduction. Again, age appears to influence the *direction* of alteration. Twelve men, average age 42 years, lost 0.5 to 1.8 pounds per week and showed a *decrease* of 5.5 milligrams total serum lipid per 100 milliliters of blood for each pound of weight lost. Twelve younger men (average age 22) lost at the rate of 1.5 to 3.5 pounds per week and showed an increase of 3.98 mg of total serum lipids per 100 ml of blood. Work in the Nutritional Laboratory at Michigan State University (unpublished data) has not demonstrated any consistent change in serum cholesterol with weight loss.

Recently interest has been directed to the different effects of vegetable and animal fats on the plasma lipid content of humans. Beveridge *et al.* (*18*) fed diets which contained either 28.4 per cent or 58.5 per cent of the total calories from vegetable fat following a "free-choice" diet and observed a decrease in plasma lipids. When butter provided 58.5 per cent of the calories, lipid levels increased on the fourth and seventh days. This was followed by a return to a level slightly below that at the beginning of the study. At this time there is insufficient evidence to support the use of one fat in favor of another.

Mineral and Vitamin Needs

Considerably less is known about the mineral and vitamin needs of the adult man and woman than is known about the need for calories and protein. For example, it appears that a case could be made for a recommended calcium allowance from 150 to 1500 mg depending upon which data were selected to support one's thesis. Innumerable dietary surveys have revealed a wide variation in calcium intake, but little evidence relates ill health to low intakes. Calcium and phosphorus balance studies reported on 136 midwest women indicate that a daily intake of 0.9 grams of calcium was required before a majority of subjects in all age groups were able to prevent loss of calcium from body stores (*7*). The question of adaptation to calcium intake is one which deserves considerable attention. The same studies suggest that an intake of 1.5 grams of phosphorus maintains the majority of subjects in positive phosphorus balance.

Many investigators have observed the ability of older subjects to store relatively large amounts of calcium and phosphorus when these nutrients were available (*15, 19, 20, 21, 22*). Undoubtedly, the previous intake of these nutrients markedly affects retentions. Endocrine imbalance cannot be disregarded in the discussion of mineral utilization by the adult. In a review of the literature, no evidence was found to indicate that high intakes were detrimental. Because of the distribution of calcium and phosphorus in the everyday food supply it is difficult to envision toxic levels of intake.

In their study of 577 normal California men and women, Gillum and Morgan (*23*) found no evidence of anemia. The majority of higher intakes of protein and iron were found in the groups with higher hemoglobin values. At every level of iron and protein intake the percentage of men supporting a circulation

level of 14 grams per cent or more of hemoglobin was about twice that of women. These authors suggest a possibility that the male sex hormone may influence blood production significantly at least up to 75 years of age.

After the menopause in the female it is reasonable to assume that her iron requirement will be considerably less than that during the child-bearing years.

Extensive nutrition surveys indicate a wide variation in the intake of ascorbic acid with little clinical evidence of deficiency symptoms paralleling low intakes. Other studies (*24, 25, 26, 27, 28*) have indicated that the serum ascorbic acid concentrations could be increased readily with increased intakes. Age *per se* appeared to have no effect on the utilization of this nutrient. A report from the Medical Research Council in England (*29*) suggested that 10 mg of vitamin C daily protected the subjects under observation against clinical scurvy. This intake did not protect against progressive reduction in capillary resistance of the gums. It took an intake of 20 mg per day for 4 to 5 weeks to restore capillary resistance of the gums to those values found at the beginning of the investigation. The Council concluded that a 70-mg intake should protect against all deficiency symptoms.

In 1932 the Mead Johnson and Company offered an award of $15,000 for information which would establish the vitamin A requirement of human beings. In 1945 the offer was withdrawn because no investigation had been completed or was in progress which would answer the question. No researcher to date could lay claim to the offer if it were yet available. Gillum *et al.* (*30*) did observe a slight decrease in serum carotene and vitamin A concentration with age. In their opinion changes in conjunctiva and skin were more closely related to age than to vitamin A intake.

Relative to niacin requirements, Goldsmith and coworkers (*31*) have demonstrated that the tryptophane content of the diet will play the major role in the final evaluation of human needs for this vitamin. They observed that on a corn diet which provided 190 mg of tryptophane, the minimal niacin requirement of man was approximately 7 mg per day. Frazier *et al.* (*32*), using subjects 18 to 20 years of age on a diet which furnished 73 grams of protein, stated that 14.3 to 16.3 mg of dietary niacin per day seemed to provide a margin of safety for this group.

Two reports in 1956 (*33, 34*) centered attention on the utilization of vitamin B_{12}. No quantitative data are available which relate need to age. One group (*34*) observed a wide range of variation in the intestinal absorption of B_{12}. While there was no evidence of general impairment of absorption as a function of advancing age, more individuals in the older age group had impaired absorption than in the younger group. This impaired absorption occurred most often in those individuals with gastric hypo-acidity. Space does not permit the inclusion of other available research studies.

Conclusions

What are the defensible conclusions which can be drawn from the research papers reviewed?

1. The ranges in human nutritional needs are great—perhaps in the order of 5- to 10-fold for some nutrients. Williams (*35*) has suggested that the need for each nutrient by each individual is determined by his genetic background. Since no two persons enter the world with the same genetic pattern, we should center our attention more on variability and cease in our quest for the "norm." We should worry less about how much a given individual deviates from some hypothetical norm (which never has and never will exist) and obtain more information about the habits of those individuals who have successfully attained and surpassed the Biblical three score and ten.

2. It is obvious that the problem of overnutrition with respect to calories is more evident today than ever before. On which age group should we center our attention for control until our research associates can define the cause and cure for obesity? Widdowson has graphically illustrated the obesity cycle. A fat woman becomes a fat mother, who gives birth to a fat baby, the baby is fat at weaning, becomes a big child, has an early puberty—and grows into a fat woman. This assumes an excessive energy intake around the cycle.

Perhaps we should start with the fat mother and encourage her to establish eating habits in her offspring which will result in a child of "normal" weight and thus take it out of this vicious cycle. For those of us who have reached adulthood, a conscious restriction of calories appears necessary for weight control. We cannot expect a decrease in activity to be automatically followed by a decrease in food intake.

3. Apparently the need for a liberal protein intake continues throughout life. As the need for calories decreases with advancing years, care must be exercised in selection of a diet adequate in protein yet low enough in calories to avoid the "middle-age spread."

4. Since there is no evidence to the contrary, a liberal intake of minerals and vitamins should be encouraged. Food sources appear to be adequate to meet the needs of most individuals. Synthetic nutrients probably should be considered therapeutic agents.

5. There is good evidence that once dietary patterns have become fixed, they tend to be followed for long periods of time, perhaps a lifetime. Therefore, it becomes the responsibility of all who are in a position to influence the food habits of others—particularly children—to plan, prepare, serve, eat, and teach a good diet. At present this appears to be a diet relatively high in protein, minerals, and vitamins with careful calorie adjustment with age and activity.

6. Because the science of nutrition is a relatively new science, we cannot afford to crystallize our opinions and become resistant to change. We must recognize individual variability and attempt to learn more about it.

[See pages 114 and 115 for references.]

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1957 Foreign Study Tours

European Study Tour in Comparative Education. Leaves Detroit June 21, returns to Detroit August 24. Includes England, France, Switzerland, Monaco, Italy, Austria, Germany, Liechtenstein, Holland. Land tour fee, $1,075; air travel, Detroit to Detroit, $604. Up to 8 hours credit. Write to tour director, Dr. William Reitz, 727 Student Center, Wayne State University, Detroit 2, Michigan.

Family Life Studytour in Mexico. Sponsored by the National Council on Family Relations and Florida State University. Four units credit. July 29-August 25. Cost $495. Leaders Prof. and Mrs. M. F. Nimkoff, Florida State University, Tallahassee.

International Institute of Education, Geneva, Switzerland. Fifth annual session of international studies. Two, four, or six weeks' study, July 8 to August 19. Costs per two weeks' course approximately $119 excluding travel. Write to Dr. Emmerson E. Neuthardt, Director, University Heights, Buffalo 15, New York.

Laborde Fashion Study Tour. Textile firms, couture openings, museums, and manufacturing firms in Italy, France, England, Scotland, July 13 to August 17. Sponsored by Syracuse University College of Home Economics. Three credits. Cost $1300 including air transportation both ways. Write to Laborde Travel Service, Inc., 1776 Broadway, New York 19, N. Y.

Marriage and Family Life Study Tour. Sponsored by National Council on Family Relations, June 26 to August 16. Includes England, Norway, Sweden, Finland, Denmark, Germany, Holland, Belgium, and France. Tour leaders, Paul H. Landis and Judith A. Landis. Write to Dr. Landis, State Professor of Sociology, State College of Washington, Pullman, or General Tours, Educational Travel Department, 595 Madison Avenue, New York 22, N. Y.

Recent Trends in Food Processing

Margaret Ives

Dr. Ives is a chemist in the exploratory research section at the American Can Company Research and Development Center at Barrington, Illinois. She has served on committees or in official positions with the American Chemical Society, the Institute of Food Technologists, and the Association of Vitamin Chemists and is certified as a specialist in human nutrition by the American Board of Nutrition. This article is based on excerpts from a talk at a joint meeting of the New York Dietetic Association and Southeastern New York Home Economics Association last March.

WHEN we speak of food processing we are usually concerned with stabilizing the food product in some manner so that the abundant crops of certain seasons are available for use during periods of want. However, food is an extremely perishable commodity—the longer the elapsed time between the producer and the ultimate consumer, the lower the quality of the product and its competitive price. To solve the economic and nutritional problems connected with food preservation, we are constantly exploring the development of more efficient processing techniques which utilize the newest in engineering principles and packaging technology and at the same time result in the best possible retentions of quality and nutritive values.

The conventional method of heat processing of foods is fairly well known to all of us, and most of us are aware of recent developments such as the flash sterilization or high-short process (*1, 2, 3*) and the use of agitation to accelerate the heating of vacuum-packed vegetables (*1, 3*).

The following discussions explain some of the newer trends in food processing.

Experimental Thermal Processing

Electricity as a source of energy for rapidly heating food products to sterilizing temperatures has been an interesting possibility. Patents cover such ideas as inserting an electrode in an uncooked can of food, passing a current through it from the electrode to the can and thereby heating the food with electrical energy.

With the development of radio frequency generating equipment with high power output, attempts were made to sterilize food. The food can be heated when placed between condenser plates to which a high-power radio frequency current is being applied, but the heating is not always uniform, especially with non-homogeneous products. The food cannot be packaged or even partially packaged in a metal container because the current takes the path of least resistance through the metal and does not give up its power to the food in the form of heat. Consequently after being sterilized the food would have to be filled aseptically and closed in sterile containers.

Neither of these processes is economically feasible now since electricity is a relatively expensive source of heat and high-power radio frequency generators are costly equipment.

Food Preservation by Antibiotics

Antibiotics as a means of preserving foods with less heat have been of great theoretical interest to food technologists. Ever since it was demonstrated that the growth of certain pathogenic bacteria could be inhibited or completely stopped by different antibiotics, food technologists have dreamed of adding these substances to canned foods and drastically reducing or even eliminating the heat process. Such hopes are somewhat fanciful at this time. In the first place, the Food and Drug Administration has indicated that the presence of an antibiotic in a canned food on the shelf would result in a claim of adulteration of the food; moreover, there is no experimental evidence that antibiotics would be effective in this manner.

As far as fresh foods are concerned, the only present successful use of an antibiotic is in the poultry industry. Here it has been demonstrated that the storage life of chickens which have been dipped in water containing aureomycin is extended 7 to 14 days. Penicillin and streptomycin are not effective for extending the storage life of milk, fish, or beef; but a mixture of subtilin and streptomycin will extend the storage life of ground beef (*4*).

Subtilin is an antibiotic isolated in the Western Regional Laboratories of the USDA which has been used experimentally in canned foods. It may permit some reduction in the heat treatment of low-

acid foods, but, unfortunately, bacteria become adapted to it. Test packs of peas and corn were prepared with the addition of the following antibiotics: subtilin, gramicidin, methylol gramicidin, bacitracin, and streptomycin. The cans were closed and processed at 212°F. The packs were then inoculated with a spore suspension of *Cl. botulinum* containing five strains each of types A and B. None of the antibiotics tested destroyed the botulinum organisms. Subtilin was the only one which even controlled the natural flora present.

In another test, subtilin and a mild heat treatment were used for an experimental pack of tomato juice inoculated with spores of *B thermoacidurans*. No flat sour spoilage occurred in the tomato juice which contained 40 ppm of subtilin. Subculturing of treated samples has indicated that subtilin may have a destructive effect on this organism (*5, 6*).

If subtilin is proved nontoxic and permission is granted for its use in tomato juice, it may be possible to control flat sour spoilage without the use of high thermal processes and with subsequent raising of the thiamine retention.

Dehydration

Dehydration of foods is of great interest to the Quartermaster Corps. Transportation of produce to overseas bases is extremely difficult and any reduction in bulk or weight is highly desirable. The new dehydrating procedures being studied at the Quartermaster Food and Container Institute in Chicago are quite different from those used in World War II. The freeze-drying of meat in vacuum has long been considered the best means of dehydrating meats without losses of quality. The freeze-dried food could usually be differentiated from the frozen control sample and usually had a drier texture. If served in a direct comparison with a dehydrated sample without a frozen control, the freeze-dried product would probably be highly acceptable to the average consumer (*7*).

Orange juice powder that is stable even at high storage temperatures has been prepared by dehydrating concentrated orange juice containing 60 to 65 per cent soluble solids to a dried product with about 3 per cent moisture in a conventional vacuum shelf drier. Drying was accomplished under pressure in such a way as to cause the product to increase in volume 15 to 20 times. The open porous structure obtained by drying in this manner promotes rapid drying and makes the product friable. It is easy to remove from the drying surface and can be reconstituted almost instantly (*8*). Tomato juice powder, grape juice powder, and dry nonfat milk powder have also been prepared in a similar manner (*9*). This instant-dissolving nonfat milk powder is on the grocer's shelf.

The Food and Container laboratories have also developed a dehydrated green bean product which appears to have excellent acceptability. The green beans are Frenched before drying; the reconstituted product retains excellent color and texture and an acceptable flavor.

Sterilization by Atomic Energy

Because of the vast developments in the field of atomic energy, it is only natural that the radioactivity of atomic piles, or by-products from them, would be investigated with respect to their food-sterilizing possibilities. Considerable work has been done along these lines with rather nebulous results. While it is possible to sterilize food by ionizing radiation, such a pronounced off-flavor is produced from the exposure that the product is not edible. Although this obstacle may be overcome in the future, it is a great deterrent at present to the commercial application of this process (*10*).

Cathode ray radiation is the only generated type which is efficient, relatively safe to use, and practical. Fission products may be suitable for this work, but most research on these products is "classified" and unavailable for civilian study. The amount of radiation required for sterilization depends on the type and number of spoilage organisms present as well as the type of food material irradiated, but side effects in flavor changes, texture, and color may be produced even at much lower doses than those required for sterilization. These effects can be minimized but not entirely avoided by irradiation of the material in the frozen state. Irradiation in an inert atmosphere or *in vacuo* also is helpful; but, under such conditions, a higher radiation dose may be required for a given degree of bacterial inactivation or sterility than is required in a normal atmosphere (*11*).

Oxygen has been shown to be a principal factor responsible for radiation-initiated organoleptic changes. In many instances the oxygen threshold values are as low as one per cent of saturation. Special methods for removal of oxygen from the food have been investigated, such as countercurrent stripping with inert gases or prestorage in closed containers at controlled temperatures. Addition of certain materials to the food to unite with the free-radicals released by the ionizing radiations

also was studied. It was found that spices, tocopherols, esters of gallic acid, and certain other polyphenols combined with synergists such as ascorbic acid and citric acid were effective. Irradiation from the frozen state was also helpful in eliminating organoleptic changes (*12*).

To investigate the organoleptic properties of irradiated meats, samples of ground beef, beef tenderloin, pork luncheon meat, and ham in cans were subjected to 2 million rep (roentgen equivalent physical) dose of gamma radiation. Although the source used was probably the strongest available at the time (1954), the radiation time required was 24 hours. The appearance of the irradiated beef resembled attractive fresh meat and did not show the overcooked appearance of the thermally processed control. The irradiated ham was firmer and lighter in color than the control; the pork luncheon meat was abnormally fat so that liquefied fat separated out from the rest of the meat in all samples, with the fat from the irradiated samples being a pinkish hue. Most tasters reported varying degrees of off-flavor, but some did not detect it in all samples and others who did, detected some off-flavor but did not find it objectionable. Ham appeared to have the least noticeable off-flavor.

Pasteurization of beef by heating to 160°F can-center-temperature after irradiation did not affect the off-flavor in any consistent manner. The object of the pasteurization treatment was to inactivate the enzymes. Consideration of these flavor results would indicate that enzyme inactivation may not be necessary with these meat products. However, these results are not believed to be typical of most food products (*13, 14*).

Exposure to radiation does not destroy enzymes in fruits and vegetables. A heat treatment is required for this purpose; but, in the case of the fruits, the heat treatment sufficient to inactivate the enzymes is also enough to preserve the fruit so that exposure to atomic radiation is unnecessary. The situation as regards vegetables is very similar, and it would appear that there is little advantage to using atomic radiation for preservation of vegetables.

The enzymes in meat do not appear to affect the quality of the product as rapidly as do those in the fruits and vegetables. In addition, the heat process required to affect commercial sterilization in meat products is quite long; therefore, it appears that the use of atomic radiation might be advantageous. The organoleptic problem must be solved, however, before commercial use of the product will be successful.

One promising use for ionizing radiation would be in prolonging the shelf life of fresh meats and vegetables. It is quite effective in preventing the sprouting of potatoes as well as extending the life of packaged meats.

The beneficial effects of cold sterilization, high-short thermal processing, or other types of thermal processing will be nullified if the processed products are stored at high temperatures in the warehouse or home. It has been demonstrated repeatedly that cold storage of canned food results in products of high quality even after three or more years of storage. A storage temperature between 40° and 50°F for canned foods is the most practical goal at present.

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Reporting . . . . . NEWS of Home Economics Research

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ARS Information Division

Larger spending for food is a continuing trend in farm as well as city households of this country. The latest nation-wide household consumption survey is providing new benchmark figures for measuring the extent of this and other changes in family food economics and their nutritional implications.

This survey is a joint project of the Agricultural Marketing Service and the Household Economics Research Branch of the Agricultural Research Service.

The food bill of the average urban family when the survey was conducted in the spring of 1955 was $32 a week, an increase of 25 per cent over 1948. Higher retail prices account for only a little over a fourth of this increase. Other factors are a shift to more expensive kinds of food and more frequent eating out, also an increase in the number of persons per family.

In city households, the more expensive diet of 1955 includes more meat; more frozen fruits and vegetables and less of fruits and vegetables purchased in fresh, canned, and dried forms; less potatoes.

About 19 per cent of the average city family's food and beverages are bought away from home, according to the 1955 figures. Farm families' spending for these meals and snacks is still small compared with that of city families: $2 a week for farm versus $6 for city.

Farm families still produce a substantial amount of their own food, but the trend is steadily downward. In 1923, they produced 72 per cent in terms of value of total food; 1935-1936, 63 per cent; 1941, 58 per cent; 1955, 40 per cent.

The 1955 survey covers 6,000 families in cities and in rural areas, selected to give a picture of the country as a whole. The data can thus be compared with those of earlier field surveys of broad scope.

A preliminary report on food expenditures has been issued. This summarizes food spending of families in different regional and income groups in cities and on farms and makes it possible to study food budgets of such groups.

A series of reports in progress will include five on household food consumption in the United States as a whole and in four regions; five on dietary levels in households in the United States and by regions; and additional reports on home food production, amounts of food canned and frozen at home in 1954, and home baking practices in 1954-1955.

Sharing in extensive research to learn more about the amount and nature of fats in food and their nutritional value, the ARS home economics staff has concentrated attention on projects promising best returns from effort it can invest.

Following are examples of recent and current work on these subjects undertaken by the Human Nutrition Research Branch and the Household Economics Research Branch. Some of the projects are carried out partly or wholly by contract.

A bibliography on fatty acids in foods and some other commodities has been compiled for 1920 to 1949 and processed for research use. Continued work will add later references, and tables showing fatty acid content of foods are being compiled.

Fatty acid requirements of infants are being studied by the University of Texas Medical Branch under contract arrangement. This research has provided some of the first evidence on quantitative human requirements for linoleic acid in human diets. A semi-micro method, which was developed early in this research, has made it practicable to determine amounts of fatty acids in small amounts of blood serum.

Some of the co-operative studies of nutritional status of population groups conducted in recent years have included investigations of cholesterol levels in the blood of older adults.

An intensified effort is being made to obtain new laboratory data on the amounts of fats in foods as they are marketed and eaten today. This year, increased attention is being given to fats in meats.

Figures on the calories available from fat in this country's food are being kept current to indicate trends. Figures computed from the Department's statistics on national food supplies show that in 40 years the calories from fat have increased rather markedly—from 33 to 40.5 per cent. New data on the quantities of different kinds of fat-rich food consumed and on the percentages of calories from fat will be available early in 1957 from the nation-wide household food consumption survey of 1955.

As research yields new facts about fats and oils in food and nutrition, it is disclosing great complexities. Recommendations of the USDA Food and Nutrition Advisory Committee have placed the composition of fats and food oils and their role in human nutrition high on the top priority list of subjects meriting expanded research.

COLLEGE CLUBS

JOAN CASSIDY, *EDITOR*

Why I Took My Master's Degree Immediately after My Bachelor's

Betsy Owens

Miss Owens received her BS in home economics in 1953. A year later, she received her MS in textiles and clothing from the University of Tennessee. She is presently employed by Eastman Chemical Products, Inc., at Kingsport, Tennessee.

THE questions of whether to attend graduate school and whether to do so directly after graduating from college are ones to which every college student should give serious consideration. I can only give the reasons for my own decisions, but I am sure that many young women still in college feel as I felt a few years ago.

There were several reasons why I decided to study for a master's degree. I wanted to specialize in textiles and clothing, and I was interested in doing the research required in writing a thesis. I knew that there is a wider selection of opportunities available to those with advanced degrees, and that additional training would provide a better foundation upon which to build experience.

Lack of funds need not be a deterrent to the would-be graduate student. Today, attractive assistantships allay much of the financial burden. Moreover, assistantships are valuable for more than just their financial stipends. They give the holder an opportunity to understand and participate in the research in home economics which is being done in most of the universities today. Furthermore, the assistant is privileged to work with and study under teachers who have made outstanding contributions in their fields. As for myself, the experience I gained from my assistantship work in the textile laboratory of the University of Tennessee has been as helpful to me in my present position as many of my graduate courses.

If a college student decides to take graduate work, there is yet another decision she must make. Should she enter graduate school immediately or work for a while and then go back to school? These are some of the reasons why I continued from undergraduate directly into graduate work:

1. Since my college courses were a basic preparation for graduate work, I did not want to give myself time to forget the technical knowledge I had acquired.
2. I felt that I was still geared to the routine of school life and would have fewer mental and emotional adjustments to make than I would have after a few years.
3. I did not want to waste time on a second-choice position when, after additional study, I might be doing what I really wanted to do.
4. I was afraid that I might find it difficult later on to part with the financial security of a job in order to return to school.

After receiving my master's degree from the University of Tennessee, I was employed as a laboratory technician in the Dyeing and Finishing Laboratory of Eastman Chemical Products, Inc. During my first two years, I tested fabrics for such physical properties as abrasion resistance, crease recovery, and flammability. For the past year I have been doing laboratory finishing of fabrics. Finish work is always interesting in that no two fabrics present the same problem. My home economics training in clothing construction has been invaluable in enabling me to judge the type of hand most suited to a specific end-use.

Even though I have written only of my own experience, I hope that I have helped to reassure any undergraduate student who is thinking of working for her master's degree. She need not fear that advanced work is difficult, because a good student who has an unsatisfied hunger for knowledge will find that she will have no trouble with her graduate courses. The additional study has opened up a whole new world in the field of textiles to me. I have always been glad I decided to go directly into graduate work.

Why I Waited to Take My Master's Degree

Marguerite Scruggs

Miss Scruggs taught vocational homemaking for four and one-half years before returning to school to study for an MS. Later, she became national adviser to the Future Homemakers of America. She left that position in 1956 to begin work on her doctor's degree at Iowa State College.

MY decision to earn a master's degree had been tentatively made before my undergraduate work was completed. However, there were a number of reasons why I preferred to teach several years before doing graduate work.

I knew I was ready to begin teaching, and I wanted to teach. I thoroughly believed in the worthwhileness of homemaking education and the importance of the homemaking teacher who can help guide the growth and development of girls and boys. I knew a good homemaking teacher could work effectively with adults to help improve family living.

I needed to teach. I needed to experience the joy that can come with working with young people and adults. I needed to grow in my understandings of people, their goals, their interests, and their ways of learning. I knew that through teaching I would continue to learn.

Teaching provided many professional opportunities. Professional meetings such as state conferences for homemaking teachers, state home economics association conventions, meetings of the state vocational association, and teachers' meetings on the county and state levels contributed to my professional growth. Working with other homemaking teachers on curriculum development helped improve my teaching and stimulated creative thinking. Supervisors from the state office of home economics education offered guidance and encouragement. Short courses and workshops planned especially for homemaking teachers and sometimes given for graduate credit helped me keep informed of new developments in home economics.

One of the requirements for most positions in home economics education is homemaking teaching experience. Another reason, then, for deciding to teach prior to doing graduate study was that teaching is the natural first step in a career in home economics education.

Graduate work in home economics education is not merely an extension of undergraduate study. Rather, it is a search for new knowledge pertinent to recognized problems. It should be built upon understanding gained from actual teaching experience. Teaching provided me with opportunities to broaden my understanding, explore unanswered questions, and strengthen some of my beliefs about teaching. What new thoughts and concepts meant to me as a graduate student depended upon the cumulative understandings that had resulted from my experiences as a teacher, student, and person.

Relaxing over coffee, Marguerite Scruggs, second from the right, chats with her fellow graduate students at Iowa State College. Listening in, right, is Florence Fallgatter, head of the department of home economics education.

Briefly, then some of my reasons for teaching before getting an MS degree were: Teaching was the logical culmination of my undergraduate experiences. I wanted and needed to teach. There were many opportunities to learn on the job. Teaching experience is a basic requirement of most positions in home economics education. To be of most benefit, graduate study in home economics education needs to be based upon understanding gained from experience.

Today, I am back in school studying for my PhD after a lapse of several years since taking my MS, but I have not changed my mind. I am still sure that graduate study following a few years of teaching was much more meaningful to me than it would have been had I had no experience.

Textile Softeners for Home Laundering

HAROLD L. WARD
Corn Products Refining Company
New York City

Mr. Ward has had broad experience in the chemical and business fields. The Company's product development department with which he is associated follows the development of products from the research stage until their acceptance on the grocer's shelf. The article was written in response to requests of home economists for information on textile softeners.

Textile softeners, an innovation in home laundering, have recently been introduced to the American retail market. This brief description of their action aims to broaden the understanding and appreciation of textile softeners.

Softeners have been used by the textile industry in this country since the late 1930's. One of the first uses was in rayon dress goods to impart smoothness and improve the draping quality. Within five years after their introduction, it was estimated that softeners were applied to the fabric used in about two-thirds of the rayon wearing apparel. Softeners are used by an increasing number of commercial laundries. The softness of treated diapers has been an important factor in the growth of diaper services. Many of the fabrics sold today have been treated with softening and anti-static agents by the manufacturer, but after several washings the agents are removed. With a retail textile softener, the original softness of the clothes can be restored in the home laundry. The homemaker just adds the product to the final rinse water or to the last cycle after it has flowed in—in the automatic washer.

All the retail textile softeners presently marketed are dialkyl quaternary ammonium salts in an alcohol and water solution. Dye and perfume may be added for aesthetic reasons. The alcohol dissolves the quaternary ammonium salt, and the water insures dispersion in the rinse water.

Dialkyl quaternary ammonium salts consist of two portions which have very different properties. The dialkyl or fatty portion is water hating (hydrophobic) and will not mix with water. A water loving (hydrophilic) portion is combined with the fatty portion, and the resulting compound will disperse in water. The hydrophobic portion of the quaternary ammonium salt has a positive electrical charge while the hydrophilic portion is negative. In a water solution the positive charge of the hydrophobic fraction is predominant; therefore, the quaternary ammonium salts are called cationic, that is, positively charged. Most fabrics have a negative charge, and in the rinse water the positive charge of the quaternary ammonium salt is attracted to the negatively charged fabric. This explains why so little cationic softener is needed. All the softener is picked up and retained on the fabric, and none is discarded with the rinse water.

The softener forms a coating of lubricating material on the surface of each strand of yarn and a coating on the surface of each fiber in the strand. Fatty materials are excellent lubricants, and the softness of the treated cloth is due to this internal lubrication of the fibers. The softening and lubricating properties of cationic softening agents are dramatically demonstrated when these agents are used on cloth woven from filaments of glass. Before treatment the glass cloth is harsh and has an objectionable rustle. After treatment the cloth is pliable and comparatively soft, and the rustle is eliminated. A small amount of the textile softening agent has lubricated the surface of each glass filament, permitting the closely woven filaments to slip easily over each other.

Quaternary ammonium salts are also very effective antistatic agents. When two different materials are rubbed together (for example, wool and nylon), a charge of static electricity is built up on the contacting surfaces. Friction will produce a charge on natural fibers like wool and cotton as well as on synthetic fibers like nylon and acetate. In natural fibers the charge is rapidly conducted away to other parts of the cloth and grounded before it can become objectionable. Natural fibers are water loving. A small amount of water is always on the surface and forms a path on which a charge can travel. This path of water can carry a current of electricity just like a copper wire. Natural fibers will lose their water if they are dried at high temperatures, but when the fibers are again exposed to room conditions they will pick water right out of the air.

Most of the newer synthetics are water hating, and there is no path of water to conduct a charge. The charge produced by friction between the wool dress and a nylon slip will remain localized

in the nylon. Since the charge is not conducted away rapidly, further friction may produce an objectionable amount of static electricity and cause the irritating riding or clinging associated with certain lingerie fabrics. On hot damp days there is sufficient moisture in the atmosphere to conduct the charge into the surrounding air. When it is cool and dry, there is very little moisture in the air to carry a charge. The air acts as an insulator. On cool dry days, wearers of the newer synthetics may experience "nylon shock" when they ground themselves by touching a door knob or other metal objects.

A synthetic fabric which has been treated with a cationic textile softener will retain an optimum amount of moisture. Excess drying out does not result even when clothes are overdried in an automatic dryer. The softener forms a coating on the surface of the fibers, and the water-loving fraction of the quaternary ammonium salt has the same ability as natural fibers to hold a small amount of water. A path is always available to quickly dissipate any charge.

Solutions of one part quaternary ammonium salt in 20,000 parts water will kill common disease-causing bacteria within 10 minutes in vitro. Tests by a modified Agar plate method showed that fabric treated with a quaternary ammonium salt will prevent the transfer of *Staphylococcus aureus,* the common cause of boils. Some of these salts are active against *Bacillus ammoniagenes,* an organism that decomposes the urea in urine to ammonia which is believed to be the cause of diaper rash. Sufficient tests have not been conducted with retail textile softeners to make specific claims, but the germicidal properties of certain quaternary ammonium salts are well known.

Solutions of one part quaternary salt in 1,000 will materially reduce the growth of fungi. Material treated with one of these agents was completely resistant to mildew in a test conducted by the Army Quartermaster Corps.

Statements have been made that the life of clothing is substantially increased by softening agents. This claim is difficult to check in the laboratory, and to date no reliable information on the effect of retail softeners on clothes life has been published. It is logical to assume that the abrasion which causes clothes to wear would be reduced by lubrication with a textile softener. Just as a lubricating oil increases the life of an automobile engine, a textile lubricant may increase the life of clothing. This challenging problem could be an interesting subject for future research.

A Cooking Program in the First Grade

ESTHER BROWN
Ethical Culture Schools
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Teachers in the primary grades are always on the lookout for material to use in making children's school experiences meaningful and interesting. Some of the most successful areas of exploration are extension of home experiences, particularly when connected with food. We have found that activities related to food are meaningful and interesting to children.

We facilitate cooking activities for first graders by providing simple basic equipment to be kept in the classroom and shared among themselves. Occasionally when additional equipment is needed it is borrowed from the kitchen laboratory. Basic foods such as eggs, milk, and butter are supplied; other foods are purchased by the group as needed.

Making special foods for celebration of holidays is always a successful activity with the primary graders. During Halloween all the first and second graders made pumpkin pudding or pumpkin pie. The children brought the pumpkins to school to cut out jack-o'-lanterns. When they discovered that there was more to the pumpkin than the shell, that they could make something to eat from the pumpkin meat, they went at their cooking with great zeal. They scooped out the pumpkin insides, cooked and mashed the meat, and added the other ingredients to make pudding. Some groups bought prepared pie mix and made pumpkin pie. It is interesting to note that all the children enjoyed eating the finished product. Usually pumpkin in any form is too sophisticated a food for such an age group. It appeals mainly to adults. However, because they made it, the pie or pudding took on another meaning and the children enjoyed every mouthful.

Thanksgiving time brought an interest in cranberries, and the children asked for a recipe. Then they went to the store and purchased the cranberries, which were later cooked in the classroom. Most of the youngsters were thrilled with their cranberry sauce and copied the recipe so that they could make the sauce at home.

For Christmas, the children enjoyed decorating vanilla wafers with various colored icings. Some bought a cookie mix and prepared their own cookies.

Sometimes, children who have been away for a week end in the country return laden with apples. This usually leads promptly to a lesson in the art of making good applesauce.

Other popular activities with the first graders are making their favorite puddings, gelatin, French toast, pancakes, and hot cocoa. Occasionally the children go to the market and shop for salad greens, celery, carrots, and tomatoes, which they cut up attractively for their own salads for lunch. It is worthy of note that children who under ordinary circumstances will not even touch salad will heartily eat what they themselves have prepared. Another activity they enjoy is making their own picnic lunch.

Cooking is an adventurous experience for the first graders and has many values. It helps make other learnings real, such as reading, writing, and arithmetic. By writing the recipes they gain reading and writing experiences; and through measuring, counting portions and numbers of cookies, they achieve greater insight into the symbolic character of numbers. Children like the excitement of mixing foods and working with pans and dishes; and through these activities, they develop their manipulative skills. Afterwards they enjoy recalling what they have done and talking about the entire experience. These experiences are valuable, too, in that the child satisfies an urge to make something. Very often a child will develop a better attitude toward food. A previously rejected salad or pudding will suddenly take on a savory flavor if the child has had a hand in making it. Moreover, through these experiences the children learn to work together, to take turns, and to share.

Clothing Inventories of 41 Teen-Age Girls

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Rochester, New York

Since very little has been done in the study of teen-age girls' wardrobes, this study was undertaken to discover: who selects and purchases the girls' clothing, how many clothes teen-age girls have, what kinds of clothes they have, how old the clothes are, which items are newest, how much individual items cost, and how much the total wardrobe costs. It was undertaken also to see if any relationships existed between the number of one type garment owned and the number of other garments owned, between the number of garments in the wardrobe and the total cost of the wardrobe, between the cost of individual garments and the total cost of the wardrobe, between what the girls thought they spent a year for clothes and what their inventories showed they actually spent.

To obtain the information for this study, questionnaires and inventory sheets were filled out in February 1956 by the girls in the Homemaking 2 classes of Nazareth Academy. No effort was made to determine the income level, but supposedly it was a mixed group in the average range—no very high or very low incomes having been represented. The study was limited to dresses, suits, coats (including jackets and raincoats), blouses, sweaters, skirts (including jumpers), and shoes, since it was assumed that these represented the major items of clothing expense.

About one-half of the teen-age girls in this study were responsible for buying nearly all their own clothes. Most of the girls considered color, price, fit, and size when they bought garments. A good number considered whether they liked the garment, the clothes they had to go with it, and the material. Only about one-fourth considered construction and care needed.

Almost one-half of the girls had under ten garments dry-cleaned in a year. Almost three-fourths had under five pairs of shoes repaired in a year.

The average estimated amount of money spent for clothes last year was $115. The actual average according to the inventory report was somewhat higher—$139. One half the girls underestimated the amount that was actually spent; and the other half, perhaps more nearly correct because of the items not included in this inventory, overestimated the amount.

About 50 garments, including 6 dresses, 2 suits, 5 coats, 12 blouses, 8 sweaters, 10 skirts, and 7 pairs of shoes made up the average wardrobe of these teen-age girls. They apparently favored "separates" since three-fifths of the garments were blouses, skirts, and sweaters.

The number of coats and sweaters were the best indicators of the size of the wardrobe though even they were not too reliable since, on the whole, if the girls had a smaller number of one item, they tended to compensate for it by a larger number of one or more other items.

More than one-half the clothes were in either their first or second year of use. Coats and dresses were replaced less often and shoes and sweaters more often than were other garments.

The total cost of these wardrobes averaged $395. On the whole, students who had the highest total cost had the largest number of garments and paid the highest prices for them.

Since many of these teen-agers are buying most of their own clothes and since there is such rapid replacement, a study of consumer buying of clothes is one of their present needs. While dry cleaning and shoe repair were not so important as to be significant in planning clothing budgets, still they were important enough for recognition in a teaching unit on planning for clothing expense.

There is evidence, also, in the large numbers of some garments owned, in the large total cost of some wardrobes, in the large yearly expenditures for clothing in some instances, that many of these girls can well profit from continued help in wardrobe planning. The pursuance of this work, as well as the results obtained through it, will be a source of stimulation, interest, and information to the author and other teachers in the future. It is hoped that it will also be a valuable source of help for others engaged in working on similar problems with teen-age girls.

Occupational Planning by High School and College Girls

W. L. Slocum
State College of Washington
LaMar T. Empey
Brigham Young University

Dr. Slocum is a professor of rural sociology and Mr. Empey an instructor in sociology. This article is an abstract of part of the study reported in Occupational Planning by Young Women, *Bulletin 568 of the Washington Agricultural Experiment Stations, Institute of Agricultural Sciences, and State College of Washington.*

Do girls make serious occupational plans? Or, do they view entrance into the world of work as an undesirable second choice? Do they lag behind boys in their occupational planning? What sort of occupations do they aspire to enter? What factors affect their occupational decisions?

These are some of the questions which led to an empirical study of the occupational planning of high school senior and college undergraduate girls. The data were obtained from two sources: (1) a probability sample of 1,981 (approximately one-tenth) of all seniors who were in public high schools in the state of Washington in the spring semester of 1954–1,004 of these were girls; and (2) a random sample of 403 undergraduates at the State College of Washington during the first semester of the 1952-53 school year. Of these, 190 were girls.

Do girls make serious occupational plans?

They do. The large majority of both high school and college girls had settled upon a single occupational field; only 28 per cent of the high school and 14 per cent of the college girls reported they were considering more than one field.

Do girls view entrance into the world of work as an undesirable second choice? Yes and no. Marriage and the role of homemaker was clearly the most attractive prospect to most girls. When the college women were asked to choose between marriage *or* a career, they chose marriage eight to two. But their further responses indicated that they wished to qualify this position. Seven out of ten said they believed they could successfully combine marriage *and* a career and almost nine out of ten said they thought of work as a pleasant activity. Over-all, these young women were not oriented so much in terms of a career versus marriage as upon a career *and* marriage.

This orientation represents a realistic appraisal of current trends. Between 1940 and 1952 the number of employed married women almost doubled while the number of employed women with children more than tripled.[1] In 1954, almost 34 per cent of all American women were working.[2]

There are good reasons why girls make serious occupational plans. One is that the possibility of spinsterhood looms large for all women until the actual marriage ceremony has been performed. Second is the possibility that they may experience a period of widowhood during which time they will have to earn a major part of their support. Women live longer than men and tend to marry men older than themselves. Third, the desire for additional income to keep pace with contemporary living standards has led many married women to work. A typical pattern followed by many women is to work for a time shortly after marriage, withdraw from the labor force during the time their children are small, and then return to work after their children are in school or fully grown.

Do girls lag behind boys in their occupational planning? They do not. It has been suggested that

[1] P. H. Landis, *Making the Most of Marriage*. New York: Appleton-Century-Crofts, 1955, p. 57.

[2] U. S. Bureau of the Census, *Current Population Reports*, Series P-50, No. 61, December 1955.

because girls are uncertain whether to prepare for marriage or a career, they are likely to be less advanced in their occupational planning than are boys.[3] Apparently, this is not true. High school girls in our study were significantly more likely than boys to have crystallized their occupational choices, fewer were uncertain about their post-high school plans, and fewer were having trouble deciding upon their life's work. College girls, on the other hand, were at least as far advanced as the college men.

To what sort of jobs do girls aspire? They prefer "women's work." Most of these high school and college girls aspired to enter occupations which have been traditionally reserved for women in American society. Few seemed interested in competing with men, especially for those professional and managerial occupations which require large amounts of abstract thinking or policy-making decisions. However, more of them aspired to such traditional higher-status female occupations as nurse, teacher, social worker, interior decorator, or private secretary than will be able to obtain them if the present distribution of the labor force persists. Both groups virtually ignored skilled and semi-skilled types of female employment.

What forces influence girls in arriving at their occupational choices? Two questions were asked to identify the forces perceived by the girls as having influenced their occupational choices.[4] First, they were asked to identify the most important single influence in their occupational planning and, second, to name the person or persons who had been most influential.

Actual work experience on a job related to occupational choice was cited most frequently by both groups of girls as the most important single influence. College women especially emphasized work experience. Although work experience was not named as a negative influence, it may be conjectured that work on distasteful jobs may have led some girls to reject occupations.

Most of the high school and college girls had worked. Approximately six out of ten of both groups had worked on full-time jobs and nine out of ten had worked part time. No information was gathered on the types of jobs held by the college girls, but those held by the high school girls were mainly unskilled; on full-time jobs they worked mainly as ushers, waitresses, sales clerks, farm hands, and domestic workers, and on part-time jobs they worked mainly as baby sitters. Thus, although many named work experience as the most important single factor in their occupational planning, few of the actual occupational roles provided an adequate basis for realistic decision making.

Other "most important" influences named by the high school girls in order of importance were school study, parents, vocation of some admired person, the prospect of making money, and the influence of various other individuals. The influences listed by the college girls were generally similar.

Parents were named by both groups of girls as the most influential persons in their occupational planning, but it should be noted that, relatively speaking, parents were seldom named as the most important single influence.

Teachers were generally ranked second and close friends third. However, one-fourth of the high school and almost one-fifth of the college girls felt that no one had influenced them. Apparently influences in occupational decision making are so diverse and nonspecific that to many girls they are unrecognizable.

What implications do these data have for educational policy making? The fact that most young women are evidently planning to marry *and* to participate in the labor force suggests that schools and colleges have some obligation to assist young women to prepare themselves for the dual roles of homemaker and a gainfully employed worker.

The fact that more than two-thirds of the high school senior girls had crystallized their occupational choices means that assistance in connection with occupational planning cannot be deferred to the senior year of high school or the freshman year of college but must begin much earlier.

The fact that related work experience was found to have great influence in the choice of an occupation has special significance for parents, counselors, and prospective employers as well as the educational system. Additional opportunities seem necessary so that young women can readily obtain constructive work experience. Employers of young people have a fine opportunity to contribute materially to their development by helping them to obtain insight concerning the challenging aspects of the job.

[3] See R. E. Baber, *Marriage and the Family*. New York: McGraw-Hill Book Co., 1953, p. 387.

[4] It is frequently difficult for an individual to identify all of the forces which play an important part in his occupational decision making. Nevertheless, it would be a mistake to classify influences acknowledged by individuals as having no importance. For further information on this matter, see our *Occupational Planning by Young Women*.

AHEA Activities

Meet Me in St. Louis

EDNA KRAFT JAMES

Mrs. James, senior vice-president of AHEA, is chairman of the program planning committee for the 1957 annual meeting.

"Meet me in St. Louis" will be the theme song of hundreds of home economists this spring. And it is now time to make your plans to attend the 48th Annual Meeting of the American Home Economics Association, which will be held in St. Louis, June 25 to 28.

Although the 1957 meeting will carry no general theme, the members of the program-planning committee kept in mind the thought "from the minds of men to the lives of people" as they met in St. Louis on November 1, 2, 3 to formulate over-all plans for the meeting. The three general sessions, one of which will be held in the evening, will emphasize the importance of creativeness in the minds of men to our whole profession, better living—a long-time result of research, and reaching around the world in home economics.

Our ever-popular eye openers will take on a bit of a change this year, as each is lengthened by the addition of, or by correlating with it, a program closely related to the activities of a section or a committee of our Association. In one of the eye openers we hope to take advantage of the fact that St. Louis is one of our great fashion centers and bring to you some of the excitement and information which it has to offer in the field of fashion.

Subject-matter and professional sections will have half-day meetings with additional time for their business meetings. It is hoped that this arrangement will allow time for a fine program and still provide ample time to transact the business of the sections.

No one will want to miss the reception which will honor the state presidents and national officers. Our local committee promises that it will be a gala occasion with a real Dixieland touch. It will be held early in the week and will afford an opportunity to meet old friends and to make new ones. The reception will be supplemented by other social affairs, including alumnae luncheons and teas.

Eugene Taylor

Margaret Deck (standing) and Mrs. Louise Rotty (seated at right), local co-chairmen of the local arrangements committee for the 1957 annual meeting of the AHEA in St. Louis in June, point out places of interest in St. Louis to Mrs. Edna Kraft James (left), chairman of the program-planning committee, and Beulah V. Gillaspie, AHEA president, during the program-planning committee meeting in November.

The local committee has many intriguing suggestions for professional trips and entertainment, both of which add greatly to make a profitable and pleasant convention.

St. Louis affords a fine air-conditioned auditorium with comfortable and adequate facilities both for general meetings and for smaller group meetings. It is easily accessible to the many fine hotels available for our reservations.

"Meet me in St. Louis!"

"Home Economics—On Stage" Aids Teachers Use Radio and TV

"Home Economics—On Stage," a collection of suggestions and scripts for interpreting family-centered teaching to the public through radio, television, PTA, and other programs, has just been completed by the AHEA elementary, secondary, and adult education section.

The material is presented in an 8½- by 11-inch booklet and set up in a form that is immediately usable in a classroom, TV or radio studio—in fact "on stage" anywhere that young people have an opportunity to present homemaking experiences to the public. Copies will be available soon from AHEA headquarters. Price 50 cents per copy.

AHEA Begins International Associate Program

The American Home Economics Association has invited 92 persons in 12 foreign countries to become international associates of the AHEA under an agreement between the AHEA and the International Cooperation Administration.

This agreement is part of a program of continuing professional contact between persons from other countries who have been in the United States on visits sponsored by the ICA and professional associations in the United States. The persons whom the AHEA has invited to become international associates have been in the United States on programs of study or observation connected with home economics.

The Association's three-year agreement with the ICA (See also page 525, September 1956 JOURNAL) provides that the Association shall invite persons recommended by the ICA to become international associates at a fee to be paid partly by the associate and partly by the International Cooperation Administration. The international associate will receive the JOURNAL OF HOME ECONOMICS, other materials supplied regularly to AHEA members, and each issue of the AHEA list of publications. The Association will also answer inquiries about home economics from the international associates and give such assistance and advice as it can should home economists in the associate's country wish to form a home economics association.

The persons invited to become international associates of AHEA live in Brazil, Ecuador, El Salvador, Guatemala, Haiti, India, Lebanon, Pakistan, Panama, Paraguay, Philippines, and Thailand.

Iowa Recruitment Project Gains in Second Year

The Iowa Home Economics Association reports that its two-year-old, state-wide recruitment project has added 25 schools to those working on the project. Already there are some students in college who have chosen home economics because they learned about home economics opportunities through the project.

The state Association's project encourages groups of high school girls to:

1. Study the major areas of specialization in home economics.
2. Study colleges offering home economics degrees; secure information on scholarship opportunities.
3. Report the results of the investigation to the class or group; to the school and to the community.
4. Complete the summary sheet and submit to the Iowa Home Economics Association.

Members of the state association encourage new groups to undertake the project and serve as sources of information about particular areas for students investigating home economics careers. The state Association gives suitable recognition for outstanding work.

Spring Meetings of State Home Economics Association

STATE	CITY AND DATE
Arizona	Tucson, April 12, 13
California	San Francisco, April 13-15
Connecticut	Southbury, May 23
Delaware	Dover, April 6
District of Columbia	Washington, May 22
Florida	Tallahassee, March 22-23
Georgia	Savannah, April 5, 6
Illinois	Chicago, March 30
Indiana	Indianapolis, March 29, 30
Iowa	Ft. Dodge, March 29, 30
Kansas	Manhattan, March 21, 22, 23
Louisiana	Lafayette, March 8, 9
Maryland	Westminster, April 6 or 13
Massachusetts	Boston, May 4
Michigan	Detroit, April 11, 12, 13
Minnesota	Mankato, April 27
Missouri	Columbia, March 22-23
Montana	Bozeman, February 8, 9
Nebraska	Kearney, April 12, 13
New Jersey	New Brunswick, May 18
New York	Albany, April 5, 6
North Dakota	Fargo, April 6
Ohio	Akron, April 12, 13
Oregon	Salem, May 17-18
Pennsylvania	Harrisburg, May 3, 4
Tennessee	Memphis, April 5-7
Texas	Fort Worth, February 15, 16
Virginia	Roanoke, March 21, 22, 23
Washington	Seattle, April 26-27
West Virginia	Jackson's Mill, May 5, 6
Wisconsin	Green Bay, April 5, 6
Wyoming	Casper, April 12, 13

Abstracts

Education (Higher)

Contributed by MARIE DIRKS
Ohio State University

[ABSTRACTER'S NOTE: How to maintain and improve the quality of instruction in view of increasing enrollments and inadequate staff is one of the major problems of higher education. The following articles present (1) points of view regarding the problem and (2) some approaches to the problem's solution.]

Maintaining and improving the quality of instruction. Panel discussion before the Eleventh Conference on Higher Education. *J. Higher Educ.* **27,** No. 5 (Autumn 1956), pp. 239-255.

According to Alvin C. Eurich, the real issue is, "Will we persist in our efforts to keep classes small knowing that in so doing the quality of instruction will deteriorate, or will we seek new ways of instruction, as we must, if only fully qualified faculty members are to carry out instruction?" The problem is how a whole range of possibilities—independent study, counseling, laboratory, small group techniques, large group demonstrations, lecturers, TV, and other modern communication aids can be used to bring the best instruction to the student.

Harold Taylor would change the concern from maintaining quality of instruction to maintaining and improving quality of learning. He thinks the content and organization of the present curriculum lacks challenge. He would cut down the number of courses and provide a fuller, richer body of material, have fewer full class meetings, and supplement them with a variety of small group discussions and creative projects initiated and carried on by students. Leadership would evolve within the group; upper-classmen would assist in instruction at lower levels.

Warner G. Rice expresses concern over how students will be selected and motivated. If inculcating knowledge is to be the principal function of teachers, he would have them released from clerical work, counseling, and arranging the university calendar. Also, if young staff members are to work primarily with large classes at lower levels, they should be so trained that they feel competent to do the job and given status and reward commensurate with their talents and special tasks.

Academic training of college teachers, F. HARD. *Educ. Record* **37,** No. 4 (Oct. 1956), pp. 299-302.

This is a review of three recent developments in graduate education bearing on training for college teaching. (1) The graduate internship program. A series of programs in the majority of which internes serve as regular members of the college staff although with somewhat reduced programs. In addition, opportunities are provided for discussion of teaching problems with senior colleagues, special seminars on various aspects of teaching, observation of instruction, and observation of their own classes by some member of own department or especially appointed adviser. (2) Three experimental programs. The Vanderbilt four-year PhD program is designed to improve quality of teaching and produce better citizens. It permits the customary research. A unique feature is the addition of two courses—"History and Organization of the American College" and "Seminar on Basic Ideas." Stanford permits candidates to combine departmental program specialization with new graduate honors program taking the place of a departmental minor. Seven liberal arts colleges in Southern California have entered upon a joint program of graduate studies to develop more broadly trained teachers. They are experimenting with inter-departmental and inter-institutional seminars for professors, graduate students, and special groups of internes. (3) Committee of 15. Informal ad hoc committee. A recently published report, "The Graduate School Today and Tomorrow: Reflections for Professional Consideration" (New York: Fund for Advancement of Education, 1955), is exploratory, intended to provoke discussion and elicit further suggestions for providing more and better college teachers.

Improving instruction through pilot studies, E. C. HARRISON. *Assoc. Am. Coll. Bull.* **XLII,** No. 3 (Oct. 1956), pp. 424-430.

Describes the pilot study undertaken by the faculty at Southern University with the aim of improving instruction for freshman students. They worked in small groups setting up goals, selecting learning experiences, and planning for evaluation of student progress. It was tried out experimentally with several sections. Changes in methods of instruction were important but equally so were growth and change in the staff. They gained new insights into the nature of students' learning process, demands of society, new teaching skills, and new attitudes.

Family Economics–Home Management

Contributed by KATHLEEN JOHNSTON
Purdue University

Revision of consumer credit statistics, P. F. SMITH. *Federal Reserve Bull.* **42,** No. 10 (Oct. 1956), pp. 1031-1054.

Survey and census information which became available after the major revision of Consumer Credit Statistics in 1953 was used to revise the current series from 1948 to date and the seasonally adjusted estimates of extensions and repayments from 1940 to date.

The revision raises the estimate of total consumer credit outstanding by 7 per cent or $2.4 billion as of December 1955. All major types of consumer installment credit except automobile credit and all types of non-installment credit were increased by the revision.

These revisions reflect the result of a comprehensive survey of finance companies in the summer of 1955 which indicated the estimates had overestimated automobile credit held by these companies and understated the other consumer goods paper and personal loans they held. Information for other sources of consumer credit likewise gave the basis for adjustment of the series.

Revisions of extensions and repayments of installment credit were proportional to the revisions of credit outstanding. A new series giving extension and repayment by type of lender has been added.

How consumers will spend in 1965, F. D. LINDSEY. *Nation's Bus.* **44,** No. 11 (Nov. 1956), pp. 40-41.

The estimate of consumer expenditures in 1965, based on national income statistics of the United States Chamber of Commerce, is $400 billion as compared with $254 billion in 1955. It is assumed that business activities will continue at the current level.

In general the proportion of income spent for different needs will not vary greatly. However, automobile expenditures, including repairs, are expected to rise from 8.4 per cent to 10 per cent of total expenditure while clothing and shoe expenditures are expected to drop from 8.1 per cent to 6.3 per cent in 1965. Small increases are expected in the proportion of income spent for housing, medical care, gasoline and oil, and miscellaneous expenditures and small decreases in the proportion spent on food, furnishings and appliances, recreation, alcoholic beverages, and tobacco.

The biggest car market yet, G. BURCK and S. S. PARKER. *Fortune* **54,** No. 5 (Nov. 1956), pp. 109-113+.

Past estimates of the market for new automobiles have greatly underestimated the actuality. Four years ago the informed estimates were for the sale of between 5 and 5.7 million cars a year through 1960. The years 1953-56 averaged 6.2 million, and the current indications are that 1957-61 will average around 7 million.

In the 1920's about 5 per cent of the consumer's cash income after taxes went for new cars, in 1949-52 about 6.3 per cent, in 1953-56 close to 7.3 per cent, and a prediction of 8 per cent by 1961. During 1953-56 there has been a great increase in car ownership, with from 60 per cent to 70 per cent of spending units owning cars and the proportion owning two or more cars rising from 5 to 9 per cent.

The scrappage rate of old cars has now risen to equal the prewar level. In 1956 this equals 3.7 million cars, for a net gain in number of cars on the road of 2.5 million.

Regional trends in retail trade, C. WINSTON and M. P. HERTZBERG. *Survey Current Bus.* **36,** No. 9 (Sept. 1956), pp. 11-20.

The results of the census of business for 1954 compared with data for previous years and from other sources give information on changing regional and national patterns in retail trade.

From 1929 to 1954 retail sales doubled after adjustment for price changes, and physical volume increased 1½ times. In 1954 national per capita sales were $1,054 with a ratio of 60 per cent to per capita personal income. Mississippi had a low of $602 sales per capita and Nevada had a high of $1,557 sales per capita. Connecticut had a low ratio of sales to income of 51 per cent, while North Dakota had a high ratio of 87 per cent. Retail sales and per capita income have moved in a parallel fashion in each state and region in the past 25 years.

Percentage distribution of retail sales by major kinds of business varied widely. Predominantly agricultural states had a larger proportion of retail sales by automobile, farm equipment, building supply, and kindred dealers, while highly urbanized states had higher proportions of sales by food, clothing, furniture, and appliance dealers.

Family Relations and Child Development

Contributed by LEONE KELL
Kansas State College

Marital satisfaction, personality characteristics, and parental acceptance of children, G. R. HAWKES, L. G. BURCHINAL, and B. GARDNER. *J. Counseling Psychol.* **3,** No. 3 (1956), pp. 216-221.

The Porter scale for measuring parental acceptance, the Burgess and Wallin adaptation of the Thurstone personality inventory, and a marital satisfaction scale consisting of items taken from the Burgess and Wallin indexes of marital adjustment were administered to a sample of 256 couples drawn by a stratified probability sampling plan from Iowa, Ohio, Kansas, and Wisconsin. Eight sampling points with eight randomly selected families at each point were determined for each state. The sample was a primarily middle and lower socioeconomic class of parents with education limited to high school or less.

It was hypothesized that there was a positive relationship between marital satisfaction and personality characteristic scores taken separately with the acceptance scores of each of the parents. On the basis of the average within-state coefficients, it was found that there was no significant relation between the marital satisfaction scores of the mothers and their acceptance scores. The relationship between these two characteristics for the fathers was significant but so low as to be considered unimportant. These results stand as contrary to association between marital adjustment and parental acceptance reported by Porter when employing voluntary respondents who were more highly educated and who were in a middle and upper socioeconomic group. Indications of association between the personality characteristic scores and the parental acceptance scores were present but slight.

Parental response to concepts of parent-adolescent relationships, V. B. BRIGGS and L. R. SCHULZ. *Child Devel.* **26,** No. 4 (Dec. 1955), pp. 279-284.

The purpose was to test the assumption that in modern family life there is a trend to more democratic relationships. A group of 25 families having adolescent children and considered to be outstanding in democratic practices was selected by committees of extension leaders in Kansas. A check list of 100 statements was administered personally in the 25 homes by the investigator to both fathers and mothers. The responses in the areas of (1) authority and discipline and (2) adolescent independence were indicative of democratic relationships. In the two areas of (1) allowances and family money and (2) personal development the responses indicated a trend toward authoritarian family relationships. The responses were divided between democratic and authoritarian trends in the areas of (1) family relationships and of (2) personal behavior and moral belief. These results seem to confirm the statement that in this group the families were still in a state of transition between authoritarian and democratic trends.

The child in the hospital, M. CAPES. *Mental Hyg.* **40** (Jan. 1956), pp. 107-159.

This study was done in Stockholm in September 1954 by 20 pediatricians, 10 psychiatrists, a medical social worker, and a psychologist, under the auspices of the World Health Organization. Three major topics were considered: (1) the total well-being of the child in terms of his emotional and physical needs, (2) the basic training and roles of pediatricians and child psychiatrists, and (3) the working relations among the staff concerned.

It was found that, if possible, the mother should spend at least the early period of the child's stay in the hospital with him and care for him during this time. Every effort should be made to give the child the same nurse and doctor. Visiting is strongly encouraged, and special care should be given to a child whose parents live a distance away and cannot visit. Our knowledge of what the young child, particularly under five, understands and perceives at each age level is incomplete. But we do know from case studies and from experience that he often interprets what is happening to him as a punishment or as a rejection on the part of his parents. The pediatrician should, where possible, avoid sending a young child to a hospital just before or just after the birth of another baby in the family. Hospital procedures that may have a traumatic effect on the child should be avoided.

A child psychiatrist's training should include at least a year of pediatric experience and a knowledge of cultural patterns of behavior. The pediatric nurse should be trained in emotional development—its effect upon children. It was emphasized that the child psychiatrist, pediatrician, and nurse must work as a team.

Housing and Household Equipment

Contributed by ELIZABETH PARKER
Georgia Power Company

Kitchen eating areas—all sizes and shapes. *Better Homes & Gardens* **34,** No. 9 (Sept. 1956), pp. 98-99.

The article consists of illustrations and descriptions pointing out many places where an eating area may be located. Besides the old familiar places such as a separate table or bar, the article suggests a curved bar or a wedge-shaped table. One of the cleverest ideas is a trim triangle that jogs from a counter top. It's just right for two and will save many a step.

Here's the way to wire the living areas. *Better Homes & Gardens* **34,** No. 8 (Nov. 1956), pp. 52-55.

Electrical efficiency begins with circuits. It's like the water supply that serves your house. If all faucets feed from one pipe, water trickles. In the living area of your house, it's possible to enjoy television, hi-fi sets, radio, electric rotisserie, room air conditioners, and all the other new and remarkable machines only if the power supply in your house is adequate.

Circuit plans for the typical living area call for 120 volts. This requires No. 12 wire which brings in 2400 watts. This circuit provides adequate service for convenience outlets for plug-in appliances such as radio, television, and portable fans.

If you want to take real advantage of modern living standards, make provisions for at least one individual circuit, one appliance circuit, and one lighting circuit for the living areas of your home. This is a conservative estimate, for experts predict that you will require three times as much electricity in 1970 as you use today.

How you use living areas determines the circuit requirements. From the list of appliances and wattages given in the article, it is easy to check your circuit needs. You can also see how easy it is to overload a general-purpose circuit.

Don't forget lighting in modernizing your wiring. Living areas need decorative lighting as well as light for general illumination and specific purposes.

The article suggests that you ask your local utility company for assistance in planning wiring and lighting modernization.

This article is third in a series concerning housepower. Each article emphatically stresses the practical aspects of providing electrical service for future purchases as well as present appliances.

Some women don't want a dryer. *Good Housekeeping* **143,** No. 5 (Nov. 1956), pp. 188-191.

Women are often surprising. Sometimes they cling to old traditions to their own disadvantage. Continuing to hang out clothes is a good example.

Clothes do smell sweeter when dried outdoors, but the fragrance is gone by the time the clothes are ironed and put away. Is this fleeting pleasure any justification for putting up with harsh stiff clothes? Or for trying to dry clothes indoors during days of rain? Moreover, hanging out clothes is work.

An entire batch of clothes from the washer may be put in the dryer in one fell swoop. In five to ten minutes, nylon pieces tumbling leisurely in heated air are dry. Some cottons take the better part of an hour.

Cost of dryers, cost of operation, and cost of installation vary. But whatever the cost, a woman surely can't buy an appliance that would save her more time and energy.

No, electric blankets *don't* catch fire. *Good Housekeeping* **143,** No. 6 (Dec. 1956), p. 61.

This article in the service section of the magazine gives the many reasons why electric blankets cannot catch fire. It concludes with the reminder that with all electric appliances the best assurance of good performance, as well as safety, is the brand name of a reputable manufacturer and the tag indicating approval of the Underwriters Laboratories.

How to "do over" your appliances. *Sunset* **117,** No. 4 (Oct. 1956), p. 162.

Car finishing shops can now give you a new color enamel finish for major appliances at about $12 to $20 each. The price depends on the size and condition of the appliance and the amount of mixing required to produce the desired color.

Two methods, both satisfactory, are used: heat-dried enamel, similar to that used on most car finishes, and air-dried synthetic enamel. Air-dried enamel is not so hard as heat-dried but is supposed to last longer.

Ranges should have a porcelainized finish to withstand heat. Such a job is difficult for small shops. If they do it at all, it is with reluctance and at a higher cost.

Institution Administration

Contributed by JANE HARTMAN
Connecticut Hospital Association

Making refrigeration work for you, C. K. LITMAN. *Institutions* **39,** No. 5 (Nov. 1956), pp. 152-153.

"Refrigeration for Food Preservation" is one article in a series of eight parts offering information on the use, design, performance, and types of refrigerators. While refrigerators may be regarded as bulky, troublesome, and expensive, they are the means of serving fresh foods economically.

A range of 35° to 45°F, plus or minus a little in either direction, is called "normal," "commercial," or "medium" temperature range. Medium temperature refrigeration was the first method of preservation that maintained all the characteristics of original freshness. Relatively new and rapidly growing is "low" temperature refrigeration for storage of frozen foods at 0°F plus or minus a bit. While the use of antibiotics as preservatives as well as radiation may come into accepted commercial use, refrigeration is here to stay.

22 convention notes worth repeating. *Hospitals* **30,** No. 21 (Nov. 1956), pp. 60-64.

Some of the outstanding reports given at the American Dietetic Association convention in Milwaukee from October 9 to 12, 1956, are summarized.

E. Neige Todhunter commented that while dietitians have placed their profession firmly on the cornerstone of science, the future of the profession lies in the dietitian's ability to delegate responsibility and sell herself and her services to administration. John Stagl stated that the annual food service budget is one of the most important reports that the dietitian must take the initiative in preparing and presenting to administration.

Excellent summaries are included on recent developments in therapeutic diets.

Size is no excuse for poor food service, M. CAREY. *Hospitals* **30,** No. 20 (Oct. 1956), pp. 76-78.

Effective dietary practices must be developed in small hospitals. No hospital can excuse itself for poor food service because it is small.

The shared dietitian, a professionally qualified dietitian who serves two or more neighboring small hospitals, is one of the answers to the problem of increased demand for dietitians. A part-time dietitian, an experienced person who is available for a shorter work day or shorter work week in one hospital, is another possible solution. Coming into wider usage is the food service supervisor, a nonprofessional person with specialized training.

Evaluation of the food service, H. R. RODDE. *Hosp. Mgt.* **82,** No. 5 (Nov. 1956), pp. 92, 96+.

The use of business methods in evaluating the dietary department of a hospital may be desirable.

A well-qualified industrial food service company surveyed the department at Highland Park Hospital and recommended changes for its improvement. After the results of the survey were studied, a series of meetings with the board, administrator, and dietitian were held. A trial program was agreed upon for a 90-day period.

The industrial food service company installed a daily food cost system which separated patient meal cost, nourishment cost, and employees' cafeteria food costs. A selective menu was made available to all patients. A three-week cycle menu was used for three months to control costs. The employees' cafeteria was reorganized and a completely changed merchandising policy inaugurated. New specifications for food purchasing were drawn up, a physical monthly food inventory was started, and operating inventory was reduced to a two weeks' supply. Job descriptions were written for all dietary personnel and an on-the-job training program was instituted.

The administrator attributed much of the success of the program to the skills of an experienced executive dietitian on the operator's staff who gained the co-operation of the dietary department.

Labor in the dietary departments, E. L. BAKKEN and M. W. NORTHROP. *J. Am. Dietetic Assoc.* **32,** No. 10 (Oct. 1956), pp. 953-958.

An analysis of data is presented from a dual purpose study: (1) to make a comparison of several hospitals of similar size and type as to the number of minutes of labor time used per meal served and (2) to evaluate the validity of using the ratio of labor cost to raw food cost in measuring dietary department efficiency, and, further, that these two figures should approach equality.

Thirteen replies were received to a questionnaire sent to 18 hospitals. The average of supervisory and clerical time was 3 minutes per meal served and approximately 13 minutes of other labor time. If proper interpretation is made of variables, the ratio of labor cost to food cost is valid as a method of comparison.

Nutrition

Contributed by CLARA A. STORVICK
Oregon State College

Evidence for abnormal vitamin B_6 metabolism in pregnancy and various disease states, M. WACHSTEIN. *Am. J. Clin. Nutrition* **4,** No. 4 (1956), pp. 369-377.

The presence of xanthurenic acid in the urine is indicative of impaired tryptophan metabolism and is due to deficiency of vitamin B_6. This vitamin, in the form of its phosphate, pyridoxal phosphate, serves as a coenzyme for kynureninase, which is one of the enzymes necessary for the normal cleavage of the intermediary products of tryptophan metabolism.

A quick and effective method of detecting vitamin B_6 deficiency, as evidenced by the excretion of xanthurenic acid, is the use of the tryptophan load test. The amounts of xanthurenic acid excreted by subjects given the tryptophan load test by the author were: 12.5 mg (0 to 38) for 24 normal subjects, 21.0 (0 to 74) for 25 patients with various diseases, 195 (0 to 813) for 100 women at term (the xanthurenic acid excretion of only 5 of the 100 pregnant women was within the range of the normal subjects) and 300 (94 to 666) for 21 patients with symptoms indicative of toxemia of pregnancy. No xanthurenic acid was excreted by pregnant women given the tryptophan load test who were receiving 10 mg doses of pyridoxine per day. This indicates an increased requirement of vitamin B_6 by the pregnant woman.

The metabolism of vitamin B_6 in human beings, R. W. VILTER. *Am. J. Clin. Nutrition* **4,** No. 4 (1956), pp. 378-385.

The vitamin B_6 complex includes pyridoxine, pyridoxal, and pyridoxamine, all of which are found widely distributed in many foods. Vitamin B_6 metabolism has been studied in several species of animals, for example, rat, dog, pig, monkey, and man. This paper includes a review of studies on human subjects.

Biochemical and clinical symptoms of vitamin B_6 deficiency were observed by Snyderman *et al.* in their study of two hydrocephalic infants fed on a pyridoxine-free synthetic diet. On this regime, both infants showed an inability to metabolize tryptophan normally since the urine contained xanthurenic acid, an abnormal metabolite of tryptophan. At the end of 76 days one of the infants developed convulsions, and after 130 days the other infant developed anemia. The infants showed relief of symptoms of deficiency after the administration of pyridoxine.

Epileptiform seizures were observed in infants who were fed formulas containing a commercial milk preparation which later was found to contain lower concentrations of pyridoxine and fatty acids than those characteristic of milk processed by more traditional methods. Coursin reported that convulsive seizures disappeared when the infants were given formulas containing other milk preparations, and in one infant convulsive seizures ceased after the intramuscular administration of 100 mg of pyridoxine. Previous to the study reported in this paper the only abnormality observed in adults maintained on pyridoxine-deficient diets was the presence of xanthurenic acid in the urine.

In Vilter's study, 50 subjects were given 4-desoxypyridoxine which is an antimetabolite of pyridoxine. A second group of subjects was fed a pyridoxine-deficient diet. A third group was maintained on a normal hospital diet which was found to supply from 1 to 1.5 mg of vitamin B_6 per day, which approximates the estimated human requirement of 1 to 2 mg per day. Symptoms of vitamin B_6 deficiency such as seborrheic dermatitis, intertrigo, cheilosis, angular stomatitis, conjunctivitis, lymphopenia, and the urinary excretion of xanthurenic acid following tryptophan administration were reversed by pyridoxine therapy.

It is believed that if spontaneous pyridoxine deficiency occurs in human beings, it is rare. However, symptoms of pyridoxine deficiency have been observed in patients who have received isonicotinic acid hydrazide [isoniazid] and have disappeared following pyridoxine therapy.

Vitamin B_6 deficiency in the Rhesus monkey, J. F. RINEHART and L. D. GREENBERG. *Am. J. Clin. Nutrition* **4,** No. 4 (1956), pp. 318-328.

Of special interest in this paper is the fact that these investigators observed that monkeys maintained on a pyridoxine-deficient diet developed degenerative vascular lesions similar to those of arteriosclerosis in man. Other symptoms observed in pyridoxine-deficient monkeys were progressive loss of weight, anemia, dental caries, and "fatty metamorphosis in the liver, often with cirrhosis."

Since arteriosclerosis is a serious and prevalent disease of the adult human population, the results of these experiments on monkeys which develop similar pathologic lesions on a pyridoxine-deficient diet point to an important and relatively new approach to the study of human nutrition.

Social Welfare and Public Health

Contributed by FLORENCE M. HURST
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Rochester, Minnesota

Unfinished business in maternal and child nutrition, M. M. HESELTINE. *Public Health Repts.* **71,** No. 2 (Feb. 1956), pp. 139-143.

To do the task ahead in maternal and child health, we need to know more and do more with what we know. For example, we need to extend our knowledge of nutritional requirements for optimal health of individuals at all stages of development, to learn more about the relation of nutrition to healthy teeth, and to have further information about the relationship of the prenatal diet to the well-being of the mother and infant. In addition, we need to know more about the individual or group to whom the nutrition information is directed. The unfinished work in maternal and child nutrition should be the responsibility of all public health workers, as individuals, as a group, and also in co-operation with other agencies.

Nutrition at the shopping center, W. H. SEBRELL, JR., MD. *Public Health Repts.* **70,** No. 6 (June 1955), pp. 561-563.

Although the nutritional quality of diets in the United States has improved since World War II, research studies with large segments of the population indicate a need for an effective and continuing program of nutrition education. The housewife learns the value of good nutrition to herself and her family from physicians, teachers, nutritionists, and others. Usually it is her responsibility to buy food for her family; however, at the market or food store, no guidance is currently available to help her make her purchases conform better to the standards which she has been taught. If some plan could be devised for giving nutrition assistance where food is displayed and sold, it would be a good business practice and also make an important contribution to public health.

Do parents need the experts? S. M. GRUENBERG. *Parents'* **31,** No. 10 (Oct. 1956), pp. 46-47.

The last half century has brought tremendous improvement in child care. This was due in part to the gradual building up of a wealth of information and knowledge of child development by physicians, research workers, and others. However, it has taken "experts" to interpret and make this information meaningful and useful to parents. Parents, in turn, know their own child better than others do but cannot really understand him without a knowledge of child development in general. After parents have chosen information on child care, they must weigh and evaluate it in the light of their own judgment and experience before using it. Parents have the opportunity to continue learning from the experts, from other parents, and from experiences with their own children. As a result, parents can better prepare for what generally comes next in a child's development.

Comparative effectiveness of a weighed reduction diet and an approximate-measure diet, R. E. FRANKLIN and E. H. RYNEARSON, MD. *Minnesota Med.* **39,** No. 10 (Oct. 1956), pp. 667-670.

A comparative study was made at the Mayo Clinic of the weight loss of 49 patients taught to use a weighed reduction diet and of 56 patients taught to use an approximate-measure diet. The findings indicated that: (1) patients using the weighed diet lost the greater number of pounds, but fewer of these patients attained weights within 10 per cent of their ideal weight; (2) since more time must be spent to teach a patient the weighed reduction diet, it appeared that the approximate-measure diet was the more practical to use; (3) follow-up of patients on either type of reduction diet is advisable at six-month intervals; (4) very few of the patients using either type of diet reported they were hungry while following the diet; and (5) approximately 90 per cent of the patients studied indicated that they had taken the prescribed vitamin supplements.

Dietary intake and social characteristics, J. K. BOEK. *Am. J. Clin. Nutrition* **4,** No. 3 (May-June 1956), pp. 239-245.

In the summer of 1950, a study was made of the relationship of the dietary intake of 184 Michigan farmers to certain of their social characteristics. It was found that the men who were younger, more healthy, and better educated had higher calcium intakes and diets of higher energy value. Men who participated more in community affairs consumed diets containing a greater amount of calcium and a larger variety of foods than those men less active. The diet of the Michigan group was found to vary in calories and ascorbic acid content at different levels of living.

Textiles and Clothing

Contributed by PAULINE E. KEENEY
Woman's College
University of North Carolina

Carpet-tufting yarns from solution-dyed rayon, J. H. BLARE. *Textile World* **106,** No. 11 (Nov. 1956), pp. 136-137+.

There have been many revolutionary changes in carpet-yarn manufacturing during the past few years. The rapid growth of this part of the industry has brought interest in many new materials and processes. The latest development is the use of solution-dyed rayon staple. A Pennsylvania mill has found that these carpet yarns are fully resistant to fading and save time in finishing operations.

The stock used is 5-inch crimped 15 denier semidull viscose rayon staple. There are 20 basic colors, but many other shades and mixtures may be made by blending these. Even when solid shades are used, a number of bales are mixed to assure a uniform blend of shade and fiber.

Since no wet-finishing treatment is given to carpets made from solution-dyed yarns, care must be taken to keep the material clean at all stages of operation. The material is processed in units on machinery made to process jute but modified for use with rayon and synthetics.

While solution-dyed yarns are a little more expensive than regular yarns, elimination of the drying operation, which requires considerable cost and time for heavy carpets, may result in a saving in the finishing process.

Random tumble pilling tester, E. M. BAIRD, L. C. LEGERE, and H. E. STANLEY. *Textile Research J.* **26,** No. 9 (Sept. 1956), pp. 731-735.

The increasing importance of the evaluation of the pilling of various textile fabrics has brought about an interest in the development of instruments to measure this property. A satisfactory test for pilling would produce pills which correlate with the number and appearance of pills in actual use performance and be applicable to a wide variety of apparel fabrics with no changes in test conditions.

The Random Tumble pilling tester developed in the Textile Fibers Department of the E. I. du Pont de Nemours & Company, Inc., is a useful tool in predicting relative pilling performance of a fabric in wear. Specimens are tumbled in a rubber lined cylinder in the presence of a small amount of cotton lint.

The advantages of the tester are:

1. A high degree of correlation between laboratory and wear pilling for a complete range of fabric types
2. Similarity in appearance and structure to pills formed in normal wear
3. All specimens tested under the same test conditions, regardless of fiber type or fabric construction
4. Sufficient capacity provided for the desired number of replicates in a reasonable time

Silicones in the textile industry, A. A. COOK. *Am. Dyestuff Reptr.* **45,** No. 21 (Oct. 8, 1956), pp. 771-775.

Extensive research on silicone compounds began early in this century. In spite of the fact that there was a dim view of the importance of this work, it was extended over a period of nearly 40 years before practical applications were found for these compounds and patents were issued to the General Electric Company and other pioneers in the field.

The two types of organo-silicon derivatives of greatest importance to the textile industry are the dimethyl and methyl hydrogen silicones and mixtures of the two. It is generally conceded that silicones with a high proportion of the methyl hydrogen type are desirable for maximum water-repellent properties. For properties involving lubrication, such as abrasion resistance, strength, and sewing qualities, the proportion is reversed with the dimethyl or noncross-linking types predominant.

The actual application of silicones is relatively simple. It is carried out in a similar manner to any finishing process on conventional textile mill equipment, provided high-temperature drying equipment is available. Following a normal drying procedure, the heated fabric is subjected to high-temperature curing similar to that used in the application of ureaformaldehyde and melamine-formaldehyde resins.

The property generally associated with silicones is a "permanent" or "durable" water-repellent finish. Other factors of considerable importance are spot and stain resistance, improvement in abrasion or wear resistance, tear strength, and sewing qualities. In some cases crush resistance and the hand and feel of fabrics is improved. Improvements in the silicones and methods of application will extend their future use.

Foods—An Introductory College Course. Fourth edition. By MARGARET M. JUSTIN, LUCILE OSBORN RUST, and GLADYS E. VAIL. Boston: Houghton Mifflin Company, 1956, 768 pp., $5.50.

Those who have used the third edition will find the organization in this fourth edition quite familiar. Sections on nutrition and food requirements, preparation and use of common foods, marketing, preserving, and on planning, preparing, and serving meals are included. Only the last of these sections has been extensively revised and reorganized, although each chapter in the text has been very carefully brought up to date by incorporation of recent findings and figures. Consideration has been given throughout to new forms of food materials as well as to new practices coming into use in American homes.

Because of its scope this book should be useful either as a text or reference for college classes in food preparation, food marketing, and meal preparation and service. It would probably serve better as a reference than as a text in those situations in which principles of food preparation are taught with emphasis on chemistry involved. The references at the end of each unit are limited chiefly to the recognized texts in the field, but frequent reference is made throughout the text to other sources of information such as original journal articles and recent government publications.

This text serves its purpose well in increasing interest in, and understanding of, the area of foods and nutrition. Smoothly flowing style and liberal use of pictures should make it a valued addition to either a personal or professional library. —MARGARET MANGEL, *University of Missouri.*

Safety Education. By A. E. FLORIO and G. T. STAFFORD. New York: McGraw-Hill Book Company, Inc., 1956, 327 pp., $5.50.

Safety Education is one, if not the only, book prepared especially in its field for teacher education. It has been developed and written by two educators who have used the outlines in their own teaching and concepts over a period of years.

Part I of this book deals with scope and methods in teaching safety while the second part is concerned with areas of safety education. This organization will make the book useful to teachers in a variety of subject-matter areas and those teaching in both elementary and secondary schools, as well as to school administrators and those in charge of a school safety program.

The book is well documented with up-to-date statistics and with extensive references to recent publications. Drawings and other illustrations are used sparingly but effectively.

The chapters are well organized with center and side headings and sufficient outlining and listings to indicate relative emphasis of the concepts being considered. At the close of each chapter are to be found: (1) a paragraph or two on evaluation, sometimes with examples of evaluation devices; (2) suggested learning experiences which include personal, family, school, and community factors; and (3) up-to-date and extensive bibliographical references.

There is an excellent list of available audio-visual aids with sources in the appendix. The index is adequate.

Home economists would find many suggestions for teaching family health and safety in this book even though their place in safety education is

Generalizations and methods for

Teaching Nutrition

by Mattie Pattison
Helen Barbour, and
Ercel Eppright

At last, a book that organizes the working principles of nutrition in such a way that people can understand them and apply them effectively in everyday living. Presents clear-cut, well organized "generalizations," supporting evidence, teaching approaches, and ways of evaluation. A MUST for every teacher of nutrition, public health workers, and others engaged in applied nutrition. Developed by recognized authorities at Iowa State College. Available March, 1957. About 200 pages. Illustrated. $3.95.

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Nothing seems to hold a girl back from attaining true maturity as much as the superstitions and fears that surround the subject of her menstruation. How important it is for her, at this special time of her life, to *understand* her menstrual cycle as the sign, the badge, of her womanhood—which she can look to with pride.

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Another valuable feature of this kit is the students' leaflet "It's Natural—It's Normal"—written in warm, reassuring language to stimulate in young girls a healthy *confidence* and *pride* in menstruation as a wonderful part of reaching maturity. Send for the *complete* kit today. Tampax Incorporated, Palmer, Mass.

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rather naively recommended by the authors.—ESTHER F. SEGNER, *Woman's College of the University of North Carolina.*

A Tailoring Manual. By GERTRUDE STRICKLAND. New York: The Macmillan Company, 1956, 148 pp., $4.50.

This is the third revision of this manual on tailoring. Like the previous one, it is planned to guide the home sewer in the construction of a tailored suit, coat, and slacks.

It begins with a glossary of terms that has been brought up to date and to which many new terms have been added. The material is so organized that anyone familiar with the basic clothing construction processes can easily follow it step by step in making a tailored garment. This edition includes most of the material covered in the second, plus some new material. A section has been added on the making of an adhesive dress form. This will be worth while for those who do not own a commercial dress form and have no one to help with the fitting of a garment.

The section on the construction of a skirt is very good. It gives very detailed instructions on the basting, fitting, and finishing of both a tailored skirt and a full pleated one. This section would be of particular value to anyone making her first tailored skirt.

A great deal of emphasis is placed on the alteration of the pattern and on the fitting and making of a muslin jacket. This is a very good section and is well illustrated.

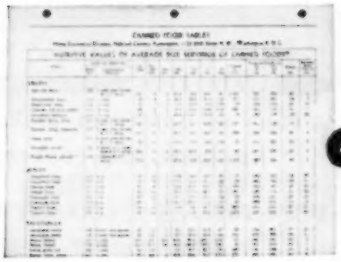
The last section, new and quite complete, is concerned with the fitting and construction of slacks—a welcome addition to any tailoring manual.

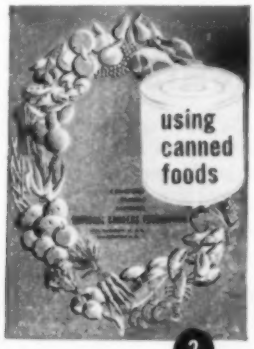
This edition has a very pleasing general format. It is the same size as the previous one but is improved by the regulation hard cover binding and easier-to-read print. The illustrations are excellent. In general, this revision has made the book much easier to follow and to use than either of the two previous editions.—BLOSSOM JOHNSON, *Illinois State Normal University.*

Sex Attitudes in the Home. By RALPH G. ECKERT. New York: Association Press, 1956, 242 pp., $3.50.

With the help of his wife, experience in rearing three children, a long background of teaching family relations and doing marriage counseling, Dr. Eckert has written a simple, straightforward guide to help parents approach the sex education of their children constructively and with confidence. While the book is primarily directed toward use by parents, it may also be used as a valuable reference by senior high school and college students.

Beginning with very young children, the author follows through until middle age with discussions





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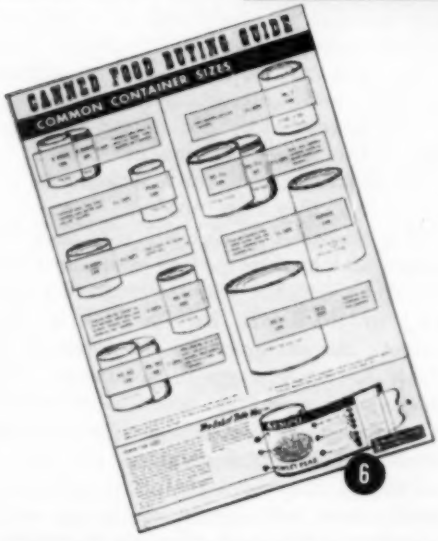

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5. USING CANNED FOODS—CLASS AND HOME ACTIVITIES. One copy for the teacher, with motivation suggestions.

6. CANNED FOOD BUYING GUIDE. Shows actual can sizes, approximate net weight and cup content of common cans and jars; wall chart, 24″ x 37″ in color.

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Greenfield-Mills Restaurant Co. are expanding and need Home Economists with from one to five years experience to train as Production Managers.

Requirements: B. S. degree in Home Economics with major in institution management or foods and nutrition.

Job Description: Production Managers assume responsibility for menu planning, purchasing orders, hiring, training, and supervision of production personnel, recipe testing and development.

Locations: Self-service restaurants in Detroit, Michigan (Greenfield's) and Cleveland, Cincinnati and Columbus, Ohio (Mills).

Apprenticeship Training: Openings also available for June graduates.

Send letter with resumé (all replies held in confidence) stating education, experience, salary requirements to:

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From 1565 to the year 2000, from the colonial housewife to the modern food specialist, this is the full, delectable history of American cooking . . . the first ever written. And there is an extra helping of curio recipes for such dishes as ash cakes, apple butter, syllabub, and candle. "Bright, succulent fun for both men and women."—*Harper's Magazine.* *$6.00, now at your bookstore.*

APPLETON-CENTURY-CROFTS

and helpful suggestions on how to build a positive approach to sex questions. Especially valuable is the section on how junior and senior high school boys and girls feel within themselves about love-sex matters. The importance of "growing to love" rather than "falling in love" is given much emphasis when dating and courtship are discussed. Parents and teachers of adolescent boys and girls are given a feeling of security and confidence to counsel the young people for whom they are responsible.

In the section on love and sex in marriage, a happy, lighthearted technique is used, suggesting a feminine approach with new information on physiology as related to sex. An excellent discussion making use of more recent findings on the menopause and the "golden years" is also included.

Suggested references for different age groups are given in the appendix.—HELEN EVERETT STEVENSON, *Baytown, Texas.*

National Standards in a Modern Economy. Edited by DICKSON RECK. New York: Harper & Brothers, 1956, 372 pp., $5.

The preface states that this volume is in memory of the spirit of Paul G. Agnew, whose contribution to the development and use of acceptable standards is recognized by all. Thirty-five outstanding authors have contributed to this review of the evolution of standards and their role in the world. The first section is a history of standards through the ages; the next deals with their liberation of initiative and productive forces; and the final one, with the implications of their use.

The book is a storehouse of valuable information. It would be difficult to think of any information that might be needed on its topic that could not be found within it or through the references that document it. The offerings are scholarly, to the point, interesting, and readable. The concept of standardization, the difficulties of developing suitable standards and their acceptance, and the concept of how many groups work together for voluntary acceptance of standards are beautifully told. Among these groups are business management, labor, government agencies, individual producers, and consumers.

There is a strong plea for development of standards before they are needed. Successful methods of setting them involve adequate research into methods and machinery, long study of what is needed, and sometimes years of conferring and negotiating by those who have a stake in the final product. For example, the development of standards in the early stages of automation will avoid much of the waste that occurs when standards are made to solve problems that have arisen in a complicated industrial situation.

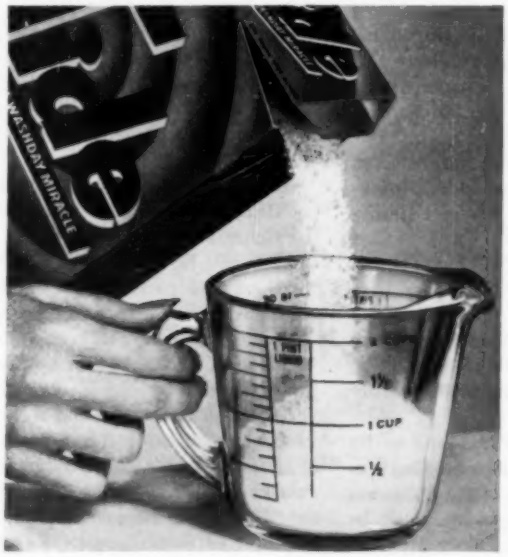
Five of the 33 chapters deal directly with consumer goods; others, with matters vital to consumer welfare, such as safety and economy in government purchasing. The book will bring satisfaction to those who enjoy good reading, to those who are interested in social movements and progress, and to those who appreciate the benefits of standardization. It is an important addition to the library of the home economist.—LUCILLE WILLIAMSON, *Cornell University.*

Antoinette Pope School Candy Book. By ANTOINETTE and FRANCOIS POPE. Second edition. New York: The Macmillan Company, 1956, 119 pp., $3.50.

Tide Washday Notes #10

FOR BEST WASHING RESULTS, JUST WATCH YOUR SUDS!

An active suds level in your automatic is the gauge that tells if you've used enough detergent for the cleanest clothes!



In top-loading automatics, start with 1 to 1½ cups of a normal-sudsing detergent like Tide. For heavily soiled clothes, or in hard water, use more detergent, experience will soon tell you how much. (In front-loading automatics, start with ½ cup of Tide.)

Always keep an active suds level. Suds should cover water and move actively through washing cycle. If they run thin, add more Tide. (In front-loading machines, have suds halfway up window. If none show after 1 minute, add more Tide.)

Remember, suds are your guide under all washing conditions

Only a normal-sudsing detergent like Tide can indicate that enough detergent has been used for optimum cleaning power. This is because suds are a reliable guide to the right amount of detergent needed for washing conditions that vary with different wash loads, soil, water hardness and temperature, and water volume.

In all top-loading automatics, using Tide's thorough-cleaning suds as a guide, you'll find that no sudsless product will wash clothes cleaner than Tide. Tide has proved so perfectly suited for modern washing procedures that the makers of 25 automatics pack Tide in each one of their new top-loading machines.

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This is the tenth of a series of Washday Notes from Tide, America's favorite for automatic washers. Clip this page for reference. For reprints of these (and previous Washday Notes), write Tide, Procter & Gamble, Dept. J., Box 296, Cincinnati 1, Ohio.

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NEWS NOTES

GENERAL

After nearly 26 years as director of home economics and nutrition service for the Evaporated Milk Association, **Marietta Eichelberger** on December 31, 1956, became the Association's consultant on food and nutrition education. The change of assignment for Dr. Eichelberger was made to enable her to complete work in certain social areas in which she has displayed deep interest and leadership.

Mrs. Marie C. Moffitt, area supervisor of home economics education at North Carolina College at Durham, represented the American Home Economics Association at the inauguration on November 9, 1956 of **Dr. Warmoth Thomas Gibbs** as the fourth president of the Agricultural and Technical College of North Carolina in Greensboro.

INTERNATIONAL

Dr. Lela O'Toole, dean of the division of home economics at Oklahoma A & M College, **Dr. June Cozine,** head of home economics teacher education at the same institution, and **Dr. Muriel Brown,** parent education specialist in the research interpretation branch, division of research, U.S. Children's Bureau, are on leave for a 3-month assignment to assist with the further development of home economics in Pakistan under the auspices of the Ford Foundation. They left the United States by air in late December.

STATE ACTIVITIES

ALASKA. To complete Curriculum Bulletin No. 1 for Alaska, a three-day conference for vocational homemaking teachers was called by Mary Morlan, territorial vocational home economics supervisor, in September. Teachers from six communities and junior high school teachers from Anchorage and two nearby on-base schools attended. At the conference teachers discussed plans for organizing an Alaskan Future Homemakers of America association.

Arrangements have been completed with the public schools to permit **home economics student teachers** from the University of Alaska to block their practice teaching in nine-week periods. Three student teachers will be assigned to Fairbanks, and one will go to Anchorage.

The Seventh Annual Short Course for Homemakers was held at the University of Alaska from October 8 to 12. Of the 60 out-of-towners registered, 12 received $75 scholarships donated by various business firms to cover necessary travel expenses.

Mrs. D. H. Stevens was elected president of the **Alaska Homemakers Council,** which met during the Short Course.

Loretta Cowden of the Federal Extension Service spent a month in Alaska visiting extension agents at Juneau, Palmer, and Anchorage and was guest speaker at the annual Extension Conference at the University from October 1 to 4.

CALIFORNIA. Plans are under way for the **Sixth Biennial Convention and Exhibition** of the California Home Economics Association to be held at the Sheraton-Palace Hotel in San Francisco on April 13, 14, and 15. Marguerite Fenner of the Pacific Gas and Electric Company, San Francisco, is general chairman, and Mrs. Ruth Walker of the Oakland City Schools is program chairman.

At a program presented by the Davis homemakers in the Home Economics Auditorium of the University of California at Davis on November 26 and 27, **Mrs. Katharine M. A'derman,** former AHEA president, gave a talk, illustrated with slides, on her year in home economics activities in Greece.

"Educating Teachers to Meet Change" was the theme of the third annual conference of the Council on Home Economics Teacher Education in California at the Lafayette Hotel in Long Beach on November 2 and 3. Margaret Pritchard, supervisor of homemaking in the Berkeley Public Schools, was chairman. "Changes in Present-Day Family Life and the Implications for Secondary Education" was the subject discussed by William Hartman and Mrs. Mollie Morgenrath, both of Long Beach State College. Saturday's topic, "How Do We Train Teachers to Meet Change," was discussed in individual groups.

COLORADO. New instructors in the department of home economics at the University of Colorado are **Mrs. Barbara Manthey Tamplin** in foods and institution management and **Helena Penalis** in clothing and textiles.

DISTRICT OF COLUMBIA. "Who Calls the Plays in the Market Place" was the subject of a flannelgraph presentation by Harry M. Love, head of the department of agricultural economics and rural sociology of Virginia Polytechnic Institute, at the dinner meeting of the District of Columbia Home Economics Association on November 28 at the Dupont Plaza Hotel.

GEORGIA. A program on **"Careers in Home Economics"** was presented by Georgia Home Economists in Business to 800 high school girls and their teachers and parents on October 26 at the Atlanta Biltmore Hotel. Frances Mayers was career-day chairman.

Mrs. A. H. Pierson of Fort Valley was selected by the Georgia Home Economics Association and the homemaking section of the Southeastern Fair as Georgia's Outstanding Homemaker of 1956.

"Bridges to Ideas" was the theme of the Fall Workshop of Georgia College Clubs at Georgia State College for Women on November 9 and 10. Speakers included Dean Barbara Chandler of GSCW, who, at the banquet, discussed "Growing toward Meeting Our Responsibilities," and Betty Ruth Joyce, AHEA field secretary, who discussed "Some Goals and Opportunities for College Clubs."

Housing researchers from eight states in the Southeastern Region participated in the Athens meeting of the Regional Technical Committee on October 16 and 17. Jessie Mize and Frankye Bland of the Georgia Experiment Station, who are engaged in housing research at the University of Georgia, were participants.

Club women and agents of the South Central Georgia Extension District recently honored **Audrey Morgan** by buying the furnishings of a Rock Eagle 4-H Center cottage and dedicating them to her at a surprise ceremony at the cottage that was attended by 200 persons, including Miss Morgan.

Josephine Martin, regional director of the American School Food Serv-

At what age should a girl be told about menstruation?

Better a year early then a day late

—is the opinion of an ever increasing number of parents, teachers and administrators. For although thirteen is the average age when menstruation starts, many girls mature two or three years earlier. Preparing young girls for this experience is a responsibility which faces more and more teachers—and those who train teachers.

To help do the job that's needed

—we supply two teaching aids: a motion picture and a booklet. Both are being used in schools all over the country to instruct girls. The animated film in sound and color is called "The Story of Menstruation." In just 10 fascinating minutes, this 16 mm. movie by Walt Disney Productions tells a forthright story of how and why the menstrual process happens. Gives authentic pointers on the care a girl should take of herself when "that day" comes—and the year 'round. Stressing the importance of daily baths, careful grooming, sensible diet and exercise. "The Story" is told clearly, with dignity and charm.

You'll want your students to see this remarkable film—available *free* (except for return postage) on short term loan. It has benefited over 20 million school girls. And has won the praise of mothers, teachers, medical and church groups.

To invite parents' cooperation, before showing the film, many teachers write a note explaining the need for this instruction. Others arrange previews for mothers and daughters, or for P.T.A. members.

The booklet "You're A Young Lady Now" also helps prepare the pre-teen for menstruation, giving her a sound, wholesome explanation in simple terms directed to girls 9 to 12. Illustrated, easy-reading, this booklet has answered millions of young girls' "growing-up" questions. It may be ordered in quantity so that each student may have her own copy.

This entire program, or any part of it, is available to you without charge from Kimberly-Clark Corporation, the makers of Kotex sanitary napkins.

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Specially prepared for girls 12 and older. This 20-page booklet provides a more thorough explanation of the menstrual process. It is closely coordinated with the film "The Story of Menstruation."

Teaching Guide and Menstrual Chart

Hundreds of teachers helped organize this flexible teaching guide. They find it adaptable to any teaching situation. The large color chart on menstrual physiology is designed for classroom lectures.

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Day wanted (allow 4 weeks) _____ 2nd choice (allow 5 weeks) _____
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Also send the following:

_____ copies of "You're A Young Lady Now" (for girls 9 to 12)
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☐ Physiology Chart ☐ Teaching Guide

(College teachers may have charts and teaching guides in sufficient quantity to supply their classes.)

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ice Association, will serve as program chairman for the 1957 convention of the Association to be held in St. Louis, Missouri.

Martha McAlpine has joined the staff of Tift College.

ILLINOIS. Lulu S. Black has been appointed state leader of home advisers to succeed Mrs. Kathryn Van Aken Burns, who retired September 1. A graduate of Iowa State College with an MS in adult education from Teachers College, Columbia University, Miss Black was county home adviser in Kane County before coming to the University of Illinois as home-adviser-at-large. She became assistant state leader in 1938.

Jeannette Dean has been appointed assistant state leader of home economics extension at the University of Illinois. Home adviser in Jackson County from 1939 to 1954, she spent two years at the Allahabad Agricultural Institute in India.

Mrs. Kathryn Van Aken Burns was presented with a life membership in the American Home Economics Association by the Illinois Home Advisers Association during the October meeting of the National Home Demonstration Agents' Association in Chicago.

IOWA. Sybil Woodruff, who retired in the fall of 1955 as professor and head of the department of home economics at the State University of Iowa after 15 years of service in that position, spoke on "International Viewpoints for Home Economists" before the Missouri Home Economics Association at its fall meeting on November 9 in Kansas City. Dr. Woodruff is now living in Kansas City, Missouri, and has taught a graduate course at the University of Kansas City since returning to her native state.

Dr. Wilma Brewer, recently of Michigan State University, joined the nutrition research staff at Iowa State College on January 1.

LOUISIANA. Ata Lee of the U.S. Office of Education worked with Lela Tomlinson of the State Department of Education and members of the home economics staff of Grambling College on November 8 and 9 on preliminary plans for a new home economics building at the College.

Hazel Anne Baker, professor emeritus of Louisiana State University, died on September 11, 1956. During her 30 years of service in the home economics department she gave it leadership as acting head for two periods. She was particularly interested in behind-the-scenes work and the welfare of students.

Dolores Comeaux joined the home economics staff of Louisiana State University in November as instructor of foods and assistant in nutrition research.

Evelyn L. Terrell, director of the school lunch section of the State Department of Education, is president of the American School Food Service Association for 1956-57.

Marie Caillet served as chairman of the proceedings committee during the Conference of College Teachers of Textiles and Clothing in Chicago from November 7 to 10.

Lois Oliver, national adviser for the Future Homemakers and New Homemakers of America, participated in the state meeting for Future Homemakers of Louisiana on December 7 and worked with Lela Tomlinson on plans for the national meeting of the New Homemakers of America.

MASSACHUSETTS. Marguerite Kraekhardt of Berlin, Massachusetts, is the new associate home demonstration agent in Dukes County. Since graduation from the University of Massachusetts in 1946, she has been teaching home economics in Vermont and Colorado and last year did graduate work at Colorado A & M College.

Mrs. Shirley Smith Weeks has resigned as the Extension Service consumer education specialist at the University of Massachusetts. She was the first to hold this new position.

Mrs. Emily P. Theis, instructor in home economics at the University of Massachusetts, expected to resume her responsibilities in the child development program there at the beginning of the second semester. While in Damascus, Syria, where she accompanied her husband on his FAO assignment to assist in the improvement of fruit-growing practices, Mrs. Theis taught several classes in English and, among other volunteer activities, served as leader of a scout group.

Jean S. Potischman received this year's Borden Award to the highest ranking senior in the School of Home Economics at Simmons College. A major in institutional management, she hopes to complete her training with a fifth-year internship.

MICHIGAN. At a joint session of the Michigan Home Economics Association and the homemaking teachers during the latter's ninth annual conference in East Lansing on November 15, 16, and 17, Herbert True, professor of marketing at Notre Dame University, spoke on **"Creativity, the Professional Approach."**

A Consumer Marketing Survey is being conducted by the home economics department of Wayne State University and the Agricultural Economics Extension Service of Michigan State University to check urban shoppers' opinions of and reactions to various types and grades of Michigan agricultural products, including pork chops, chickens, eggs, potatoes, apples, and tomatoes. The survey is conducted once a month on a Monday by 100 panel members, who check and grade the food displayed. This is the second year of this four- or five-year research project.

Dr. L. Margaret Johnson, formerly of Peabody College in Tennessee, has joined the staff at Wayne State University as associate professor of nutrition.

MINNESOTA. "Food in Civil Defense" was discussed by Colonel Hubert A. Schon, director of civil defense, at the November 12 luncheon meeting of the Twin Cities Home Economists in Business.

Mary Jadwin, chairman of the Twin Cities HEIB's, resigned her position at General Mills to join the home service staff of the Carnation Milk Company in Los Angeles, California. Marian Quire of Pillsbury is the new HEIB chairman.

Mrs. Marjorie Child Husted, consultant in advertising and consumer services and a member of the National Women's Advisory Committee of the Savings Bonds Division of the Treasury Department, participated in a National Savings Bond Conference in Washington, D. C., the last week of November. Recently she received an award from *Printers' Ink* for outstanding professional competence.

June Horne has joined the staff of the Pillsbury Home Service Center in Minneapolis as head of photography. A graduate of Manitoba University, Miss Horne was formerly food editor for the *Winnipeg Free Press,* assistant food editor of *Woman's Day,* director of a test kitchen for a New York advertising agency, and assistant editor of foods and equipment for *Better Homes & Gardens.*

Mrs. Esther Roth, a home economist in homemaking, has joined the teaching staff at the University of Minnesota. Her daughter is a student there.

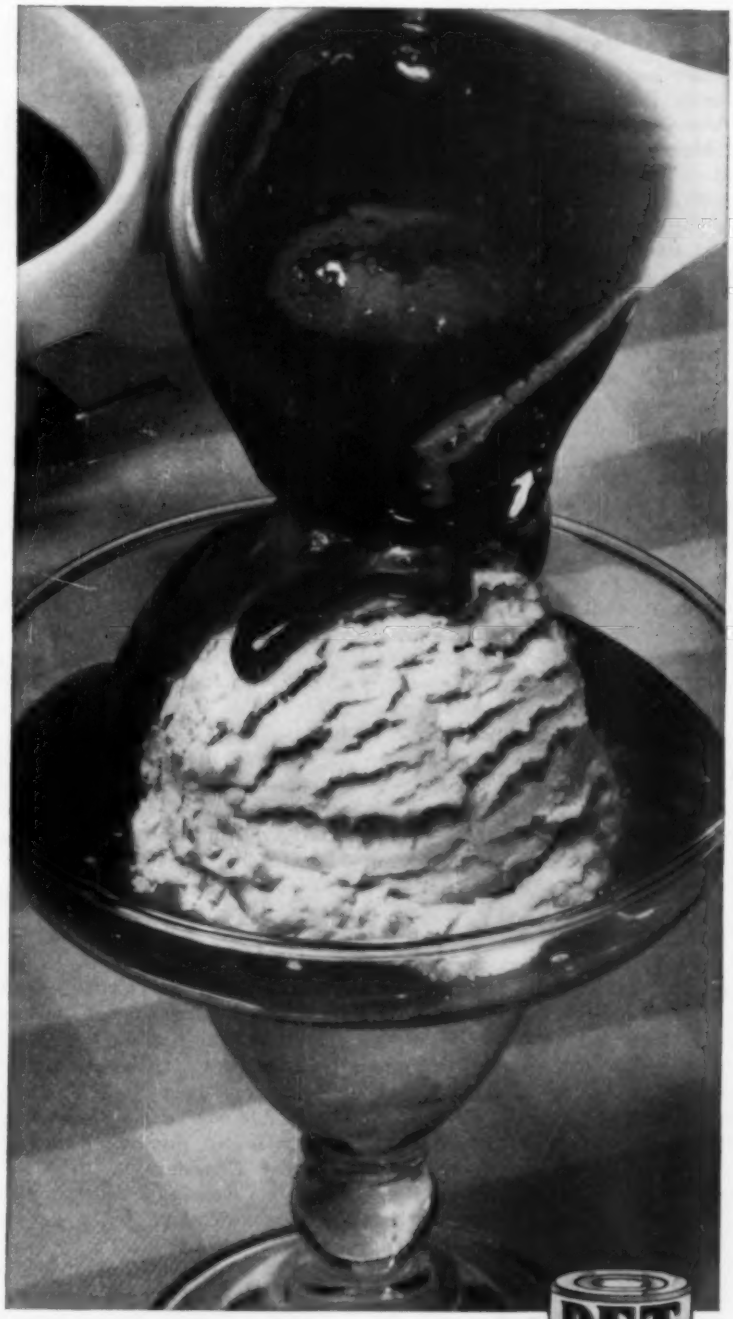
JIFFY BUTTERSCOTCH SAUCE

with a secret too good to keep!

What *is* the secret that makes this sauce so smooth and rich it flows like a creamy golden ribbon? Pet Evaporated Milk, and this Pet Milk recipe!

For no other form of milk does so much to make sauces rich, smooth, and superlatively delicious. Homogenized to double richness and creamy smoothness, Pet Evaporated Milk makes sauces—once the skillfully-guarded secrets of skilled chefs—as easy for beginners as for experts.

JIFFY BUTTERSCOTCH SAUCE is a luscious way to discover this secret for yourself. Try it, and you'll see!



JIFFY BUTTERSCOTCH SAUCE

1½ cups light brown sugar
⅔ cup corn syrup
⅔ cup PET Evaporated MILK

Put the brown sugar and syrup into a heavy quart saucepan. Cook and stir until mixture comes to a full, all-over boil, about 5 minutes. Take from heat and cool. Stir in milk. Serve warm or cold over ice cream, plain cake, pudding or custard. Makes 1⅓ cups.

BUTTERSCOTCH SNOWBALLS

Roll scoops of vanilla ice cream in coconut. Re-freeze. Serve with Jiffy Butterscotch Sauce (see recipe above).

HOME ECONOMICS DEPT. • PET MILK COMPANY • ST. LOUIS 1, MO.

Foreign students studying home economics in the state include: At the *University of Minnesota,* Leonie Belser of Switzerland (AHEA's Helen W. Atwater fellow); Mrs. Uma Nigam of India, Teiko Amano of Japan, Gregoria Trajano of The Philippines, and Elizabeth Feniak of Canada; at the *College of St. Scholastica,* Carmen Nienes and Maria Santiago, both of Puerto Rico; at the *College of St. Teresa,* Eva Suncin of San Salvador, Subhaporn Polyim of Thailand, and Maria de La Luz Manchaca of Mexico.

MISSISSIPPI. "Looking Ahead with the American Family" was the theme of the 44th Annual Meeting of the Mississippi Home Economics Association at the Heidelberg Hotel in Jackson on November 2 and 3, for which 318 persons registered.

Guest speakers were W. L. Jaquith, MD, director of the Mississippi State Hospital, Whitfield, and Catherine A. Rockwood, head of the department of family life at the University of Florida.

Members of the symposium on "Looking Ahead with the American Family" included: Stanley E. Fowler of Mississippi Southern College (chairman); Helen Kirtland of the General Electric Company, New York; Ernestine Field of the Regional Mental Health Center, Mississippi State Board of Health; and Dorris Rivers, leader of the Rural Sociology and Community Organization, Mississippi State College.

The program of the college and university section included reports on these studies at the University of Mississippi and special problems at Mississippi Southern College.

NEW JERSEY. Regional groups of the New Jersey Home Economics Association have been organized so that members who cannot attend state and national meetings are able to keep up to date on various phases of home economics and get to know one another better.

The Bergen-Passaic Counties section featured at a fall meeting Katherine Hall of Montclair State Teachers College and James Kimple, assistant superintendent of schools in Fair Lawn, who discussed trends in home economics on elementary and secondary levels.

The Southern Counties section was addressed by Walter Maclinn of Rutgers University on "Developments and Trends in Foods and Food Marketing."

At *the Union County section's* dinner meeting in January Dorothy Williams of East Orange spoke on "Mutual Funds as Investments."

Mrs. Marie Pentz Meyer, associate professor of home economics at Douglass College, is serving as acting chairman of the department of home economics this year.

Mrs. Mary Armstrong, home agent in Union County and former president of the New Jersey Home Economics Association, received the Sarah Bradley Tyson Award Fellowship, sponsored annually by the Women's National Farm and Garden Association, Inc., for outstanding work and ability in extension work. She plans to complete work on her doctorate at Columbia University.

Mrs. Sue Reynolds is a new staff member at Montclair State Teachers College. In the College High School, she is teaching the ninth grade in a fifty-minute period and compiling food laboratory lessons appropriate for this length period.

Esther McGinnis of the Ohio State University is scheduled to conduct a three-week Workshop in Family Life Education at Douglass College in July.

NEW YORK. At the meeting of the *Southeastern District* of the **New York State Home Economics Association** on October 2, talks on "Women's Role in Housing" were given by Annabelle Heath, assistant federal housing administrator, and Esther Foley, home service director of Macfadden Publications; and on "Women's Role in Housing" by Margaret Spadder, food and equipment editor of *Living for Young Homemakers.*

The fall meeting of the *Southern District* of the Association was held on November 3 at Cornell University. The luncheon speaker, Durga Deulkar of Lady Erwin College, New Delhi, India, a graduate student at Cornell and a former AHEA Helen W. Atwater fellow, discussed "Home Economics Education in India." The program included a demonstration of electronic cooking by a Kelvinator representative.

Dr. Kathleen Rhodes, chairman of the home economics department of Douglass College, Rutgers University, from 1953 to 1956, joined the Cornell University staff in September as associate professor of home economics education.

Two student honor awards were recently presented at the College of Home Economics, **Syracuse University.** The *Borden Award* for outstanding scholarship, especially in the areas of food and nutrition, went to Ruth D. Anderson of Jamestown, New York, a junior foods and nutrition major. The *Emily Gere Coon Award,* made to the outstanding freshman of the College, went to Catherine Mary Ascioti of Syracuse.

Four former Future Homemakers of America members now attending **State University Teachers College at Oneonta** presented for the local D.A.R. Chapter a program on the contributions of the FHA to the development of good citizenship. Georgiana Marks of the State Bureau of Home Economics and Martha S. Pratt shared in the panel discussion.

OHIO. Projects of the *Stark County* home economics group of the **Ohio Home Economics Association** include a scholarship, to be presented for the first time in May to a worthy girl in the county who plans to major in home economics, and a home economics recruitment meeting on April 1 to which sophomores, juniors, and senior girls in the county will be invited for a program entitled "Home Economics—the Career of a Lifetime." Martha Davis, president of the Ohio Home Economics Association, will be a consultant for this meeting.

Members of the *Seneca County* home economics group also are working on recruitment. In October four of the members gave talks at the Seneca County Career Day held in Attica.

"Let's Be Display Conscious" was the theme of the southwestern regional meeting of college home economics clubs on November 17 at the University of Cincinnati. Representatives of the various clubs gave short talks and demonstrations related to the theme, and Mary Wylie of the University of Cincinnati demonstrated "learning displays" that could be used in junior and senior high schools.

Martha Davis, home editor of the *Ohio Farmer* magazine, received the "Life Line of America" trophy in the farm publications class awarded on November 14 by the Grocery Manufacturers of America at the annual meeting of that group in New York City. The trophy, a sterling silver bowl, is a replica of the famous London Bowl. Miss Davis' award was for a series of six feature stories giving farm readers a better understanding of what shoppers should look for when

This month's teaching tip from Kay Kellogg

How to tie a bright new ribbon on one of your "old favorite" recipes

Play tricks like these with ready-to-eat cereals

Use a ready-to-eat cereal—Special K, for example—as a simple, easy crouton topping for your soups.

Crush Rice Krispies and use the crumbs to "bread" pork chops, fish fillets or veal cutlets.

Serve chop suey or creamed meat over crisp, fresh-toasted and buttered Corn Soya shreds.

To add flavor to meat loaf, use wheat flakes—Pep, for example—as one ingredient in your recipe.

Use Shredded Wheat in place of bread in your recipe for turkey stuffing, for extra texture and taste.

Crush Corn Flakes, combine with melted butter, and serve as a topping for meats, fish or vegetables.

Clip this page for your file. For your FREE copy of *Along the Trail*, and of *Choose Your Calories Wisely*, just write Kay Kellogg, Kellogg Co., Dept. JHE 257, Battle Creek, Michigan.

For a start, give your class these simple ways to play tricks with basic dishes. Then, let them in on one of the real secrets of keeping menus fresh. Show them how to use a bit of cereal with a dash of imagination—that's the sure-thing recipe for making old favorites new again.

Kellogg's OF BATTLE CREEK

they buy meats, dairy foods, fruits, and vegetables.

Recognition of **60 years of home economics at the Ohio State University** was a feature of the eleventh Annual Institute of the Home Economics Alumnae Association on November 3. Pictures from "then" and "now" were exhibited. Henrietta Wahlenmayer Newell highlighted outstanding developments in the three 20-year periods and commented upon their relationship to the present situation. A symposium on "A Forward Look in Home Economics" was followed by short workshop sessions in five areas of specialization. The luncheon speaker, Vice-President Frederick Heimberger, discussed "The University and the Future."

Resident, extension, and research staff members and graduate students in home management and household equipment at Ohio State University are co-operating in **one-hour weekly seminars** for discussion of new developments relating to both areas.

The Cleveland Dietetic Association reports a successful joint project—called **"Diet and the Diabetic"**—with the Cleveland Diabetic Association. The project was endorsed by the Academy of Medicine and other health services in the city, and patients were referred to the classes by their physicians.

PENNSYLVANIA. The Career Day program arranged by the Butler County home economics group of the Pennsylvania Home Economics Association included the Iowa State College film "The Home Economics Story"; a talk by Helen Bell, head of home economics placement at the Pennsylvania State University; and ten-minute conferences for groups of 25 students with each of the 14 speakers, who represented various areas of the home economics field.

Home economists receiving **achievement citations** at the Alumni Honors Assembly of the Sixty-fifth Anniversary Convocation of Drexel Institute of Technology on December 2 included the following members of the AHEA: Edith M. Barber, New York; Grace M. Bulman, Alexandria, Virginia; Verna M. Criss, Reading, Pennsylvania; Carrie M. Thornburg, Baltimore, Maryland; and Mrs. Ella Riedell Williams, Rahway, New Jersey.

The College of Home Economics at the Pennsylvania State University holds a **Scholarship and Awards Dinner** each year at which time donors or their representatives present awards to the students who have been selected by the College scholarship committee.

This year 32 students in home economics and hotel administration received the following awards or scholarships: Borden Award, Buff-Henley Scholarship, Ellen M. Stuart Memorial Award, Extension Homemaker Scholarships, George D. Barbey Scholarship, Joseph Ashner Memorial Award, Joseph V. Horn Scholarship, Kroger Scholarships, Pennsylvania Hotels Association Scholarship, Pennsylvania Restaurant Association Scholarships, Sears, Roebuck Foundation Scholarships, Shuck Hotels Awards, State Federation of Pennsylvania Women Scholarships, and the Pittsburgh Home Economists in Business Scholarship.

The Pittsburgh HEIB's established a scholarship for a freshman who will receive $200 the first year and $100 each of the next three years. They select their own recipient and this year selected Janet Moore of Pittsburgh. Mary Wood, president of the Pittsburgh HEIB's, presented the scholarship at the dinner.

Dr. Kathleen A. Johnston, recently professor of family economics and housing at the Pennsylvania State University, joined the staff of Purdue University on February 1.

SOUTH DAKOTA. The department of child development and family relations at South Dakota State College is sponsoring a film forum—**"Living with Your Children"**—for the parents' group of the nursery school under Helen Young's direction.

A Marriage and Family Counseling Center is being established by the department of child development and family relations at South Dakota State College to deal with premarital, marital, and family adjustment problems of the students. J. Anthony Samenfink will be the director.

Alma Reeves, a '55 graduate of South Dakota State College, has accepted a position as home economist for the Northern States Power Company with headquarters in Sioux Falls.

TENNESSEE. A Cheese Festival Open House, sponsored on October 25 in the home service department of the Knoxville Utilities Board by the Knoxville area home economics group of the Tennessee Home Economics Association, in co-operation with various cheese companies, attracted more than 200 persons. Over 100 varieties of cheese plus recipes and educational information were displayed, and many savory samples were available for tasting. Following the Open House, the Knoxville area home economics group held their first meeting of the year. The group's theme for the year, "The Home Economist as a Citizen," was discussed by Dorothy Holland of Kraft Foods Company, Chicago.

WISCONSIN. ***Have You Considered Home Economics?*** is the title of a brochure prepared by the public relations committee of the Wisconsin Home Economics Association. Maxine McDivitt of the University of Wisconsin served as chairman for the publication. The brochure lists state schools offering degrees in home economics and gives information about majors offered, number of staff members, and costs of tuition as well as board and room. It also describes scholarships open to home economics students. More than four thousand copies have been distributed to high school teachers, guidance directors, home demonstration and 4-H club agents, and home economists in business for use in recruitment.

Frances Zuill of the University of Wisconsin participated in a meeting of the joint committee of the American Association of Land-Grant Colleges and State Universities and the U.S. Department of Agriculture on training for government service, and **Rita Youmans,** also of the University staff, was a consultant at the Supervising Teachers Conference at Purdue University.

WYOMING. Dr. Helen J. Souders of Davis, California, has been appointed to direct the food and research program at the University of Wyoming.

The fifth annual **Family Life Conference,** sponsored by 12 adult statewide groups, is scheduled at the University of Wyoming on June 13 and 14.

Florence Lloyd of Ohio State University will teach a course in family finance and management at the first session of the Summer School at the University of Wyoming.

FLASHES FROM OUR ADVERTISERS AND EXHIBITORS

Procter & Gamble has announced the names of the 47 colleges and universities which will be offering P & G scholarships during 1957-58 as part of the Company's $650,000 annual educational assistance program. The scholarship plan, set up two years ago by the Procter & Gamble Fund, calls for a total of 240 four-year scholarships at independent institutions. One-fourth are awarded by the schools each year. Scholarships provide for four years' tuition, an allowance for books, fees, and supplies; and an unrestricted grant of $600 to the school. An attractive explanatory folder, designed for bulletin board posting, is available upon request to Dr. Herbert S. Coith, The Procter & Gamble Company, Box 599, Cincinnati 1, Ohio.

Frozen Desserts—so attractively presented that everyone will head straight for the kitchen and so easy to make that youngsters can whip up their own party fare—are presented in "Frozen Desserts: Made with Pet Evaporated Milk." The 8½- x 11-inch, gaily illustrated booklet is punched for a notebook and gives such educational facts as types of frozen desserts, some of the principles involved in making frozen desserts with evaporated milk, how to use an ice cream freezer, how to make ice cream in the refrigerator, a chart for judging the quality of the finished frozen desserts, as well as recipes. The booklet is free from Home Economics Department, Pet Milk Company, St. Louis, Missouri.

Singer's search for the best home seamstress of 1957 began on New Year's Eve and will continue until the 1957 Grand Sew-Off and awarding of a $25,000 prize to the top winner. Other cash prizes will total $53,750. The Singer Sewing Machine Company announces that the contest, which has become an annual affair, is open to women over 18. Women registering for the Singer Course in Home Dressmaking in any of the Company's 1800 local sewing centers between December 31, 1956, and March 30, 1957, and completing a garment by April 27 are eligible for the contest. There will be winners from local Sewing Centers and regional contests prior to the national Sew-Off.

Whatever Your Age, Feel Better by Eating Better is the title of a delightful folder written by Ruth M. Leverton and issued by the National Dairy Council. This folder was developed with the "senior citizen" in mind, since it has been found that many older adults, especially those living alone, have poor dietary habits. The value of milk for adults, the necessity for adequate protein in the diet, and the importance of calorie caution are discussed. For this folder, write to the National Dairy Council, 111 North Canal Street, Chicago 6, Illinois.

Home style and buttermilk Bisquick biscuits are being packaged to be kept in the refrigerator until you're ready to bake them—and what's more, the package has an easy-open, pull-string device that cuts the package open in the center. A foil inner wrap not only protects the biscuits against moisture and keeps them fresh but is printed with recipes for Bisquick variations. Distribution of Bisquick Refrigerated Biscuits in 31 states in late 1956 will be expanded into more markets this year.

Nutritional Contribution of Breakfast Cereals is a complete and co-ordinated teaching unit which includes an authoritative, 16-page Teacher's Source Book with charts, illustrations, and photographs, edited by Clara Mae Taylor, professor of nutrition at Teachers College, Columbia University, together with a two-color, 16- x 22-inch Wall Chart. Send for yours today! The unit is free from the Cereal Institute, Inc., 135 S. LaSalle Street, Chicago 3, Illinois.

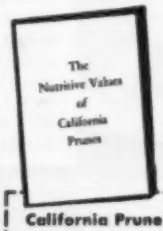
Patricia Hendrick has been named home service director of the Harper-Wyman Company at its general offices in Chicago, Illinois.

Your copy of "Nutritive Values of California Prunes"

sent FREE on request

Such pertinent subjects as the vitamin, energy and mineral values and laxative properties of California Prunes are fully authenticated in this new publication. It is dedicated to you who are professionally interested in nutrition.

All statements in this booklet have been reviewed by the Council on Foods and Nutrition of the American Medical Association.



For your copy write us a note or mail this Convenient Coupon...

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Please send a copy of your publication "Nutritive Values of California Prunes"—and the new recipe booklet.

Name_____

Address_____

City_____ Zone___ State_____

6 ways to add interest to your frying lesson

BASIC MEASUREMENTS

Pan Frying

SKILLET SIZE	PLAIN FOODS	COATED FOODS
8"	⅓ tbsp. Crisco	⅛ cup Crisco
9"	⅛ cup Crisco	⅓ cup Crisco
10"	⅓ cup Crisco	½ cup Crisco

Deep Frying

Frying kettle should be no more than half full of melted Crisco.

BASIC METHOD

Pan Frying. Moderate heat and heavy skillet are recommended for pan frying. Add Crisco to cold pan, heat until completely melted before adding food. Apply coating of egg and crumbs or flour evenly to the food. When food is well browned but needs more cooking, cover skillet and cook until done.

Deep Frying. Use deep straight-sided pan with or without wire basket, or electric deep fryer. Use 365°F. for all foods. (Test, if no thermometer: an inch square of bread will brown in 60 secs. at 365°F.) Check temperature of Crisco before adding each new batch. Fry in small batches. Drain on paper toweling.

FRYING'S FANCY

Glazed Apple Rings. Slice 6 cored, unpared apples into ¾" rings. Mix ⅔ cup brown sugar, 1 tbsp. cinnamon and ⅛ tsp. salt. Melt ½ cup Crisco in large heavy skillet and add sugar mixture. Cook apple rings in Crisco-sugar syrup over low heat for 5 mins. Turn apples. Cook till tender. 6 servings.

FRYING'S FUN

Cake Doughnuts. Mix 4 eggs, ⅔ cup sugar. Add ⅓ cup milk, ⅓ cup melted Crisco. Mix 3½ cups sifted flour, 3 tsps. double-acting baking powder, ½ tsp. salt, ¼ tsp. nutmeg. Add to wet mixture. Chill dough before rolling. Roll ⅜" thick. Cut with floured cutter. Fry in deep Crisco 365°F. till brown. Makes 30.

FRYING'S FLAVORSOME

Fried Tomatoes. Beat 1 egg and ¼ cup milk together. Use 12 1" thick tomato slices. Dip in egg mixture, then in ½ cup fine crumbs. Brown on both sides in ½ cup hot Crisco in large skillet. 6 servings.

FRYING FEAST!

Deep Fried Chicken. Cut 1 fryer in 6-8 pieces. Steam 20-25 mins. Beat 1 egg with ¾ cup milk and add 3 tbsps. melted Crisco. Add 1 cup sifted flour, ¼ tsp. salt. Beat till smooth. Dip chicken in batter. Drain. Fry in deep Crisco 365°F. 7-10 mins. 4 servings.

FRYING'S FRENCHY

Tuna Rice Croquettes. Melt 2 tbsps. Crisco. Blend in 2 tbsps. flour. Add ½ cup milk, stir over low heat till thick and smooth. Mix with 2 cups cooked rice, 1 cup tuna, 1 egg, ¼ cup condensed cream of celery soup, ¼ cup shredded cheese. Chill. Shape into 12 croquettes. Roll in fine crumbs. Fry in deep Crisco 365°F. 3-5 mins.

FRYING'S FASHIONABLE

Fried Shrimps. Peel 1½ lbs. shrimp, leaving last section and tail intact. Remove vein from shrimp. Dip in mixture of 1 cup milk, 1 cup fine crumbs, 1 egg and again in crumbs. Fry in deep Crisco 365°F. until brown—2 minutes. Drain. 6 servings.

CRISCO-FRIED FOODS ARE SO DIGESTIBLE YOU CAN EAT 'EM 7 DAYS A WEEK!

Medical tests proved foods fried properly in Crisco are so digestible you can serve them every day of the week! Crisco's different from ordinary frying fats. It's pure, all-vegetable, has no grease taste to make fried foods "heavy" or to cover flavor.

2 out of 3 bake and fry with Crisco ...it's digestible!

P.S. Crisco can be used over and over again!

Yes, Crisco can be re-used up to 8 times in deep frying! Just have your students follow these easy directions. Strain Crisco through cheesecloth or fine sieve after frying. Store in closed 3-lb. Crisco can in refrigerator.

APPLICATION FOR HOTEL ACCOMMODATIONS

48th ANNUAL MEETING

AMERICAN HOME ECONOMICS ASSOCIATION

ST. LOUIS, MISSOURI

June 25–28, 1957

MAIL EARLY ***MAIL EARLY***

All reservations must be received by June 8.
(List of Available Hotels on Back of this Page)

1. Reservation requests must be sent to the Hotels Convention Reservation Bureau—AHEA, 911 Locust Street, Room 406, St. Louis 1, Missouri
2. Please make all changes and cancellations through Hotels Convention Reservation Bureau—AHEA.
3. Single rooms are very limited. Your chances of securing accommodations at the hotel of your choice will be much better if your request calls for rooms to be occupied by two or more persons.
4. Room assignments will be made in order received.
5. Be sure to list definite arrival and departure date and time.
6. Be sure to list all names of occupants of rooms.

HOTELS CONVENTION RESERVATION BUREAU —AHEA
911 Locust Street, Room 406
St. Louis 1, Missouri

Please check if you are attending a pre-convention session ☐
Specify name of group (HEIB or EXTENSION) .....

Please reserve hotel accommodations as follows:

1. **Preferred Hotels:**

First Choice ..... Fourth Choice .....
Second Choice ..... Fifth Choice .....
Third Choice ..... Sixth Choice .....

2. **Please specify the number and types of rooms desired:**

..... Single room(s) with bath for ..... person(s). Rate $ ..... to $ ..... per room.
..... Twin bedroom(s) with bath for ..... person(s). Rate $ ..... to $ ..... per room.
..... Double bedroom(s) ..... persons. Rate $ ..... to $ ..... per room.
..... Parlor bedroom suite ..... person(s). Rate $ .....

3. **Date of Arrival** ..... Hour ..... A.M. or ..... P.M.
(Reservations will be held **only** until 6:00 p. m. unless the hotel is notified otherwise.) (If, after making reservations, you find it impossible to attend please notify the Hotels Convention Reservation Bureau—AHEA promptly.)

4. **Date of Departure** ..... Hour ..... A.M. or ..... P.M.

5. **The Name of Each Hotel Guest Must Be Listed.** Reservations cannot be made in any hotel unless two names are given for each double-bedded room or twin-bedded room. If this information is not given on your original application, the Hotels Convention Reservation Bureau must send you a card asking that you submit two names per room. This means unnecessary delay and lessens the possibility of assignment to the hotel of your choice.

NAME	STREET ADDRESS	CITY	STATE

6. **BE SURE TO SIGN YOUR NAME** ➡ **Signed:** .....

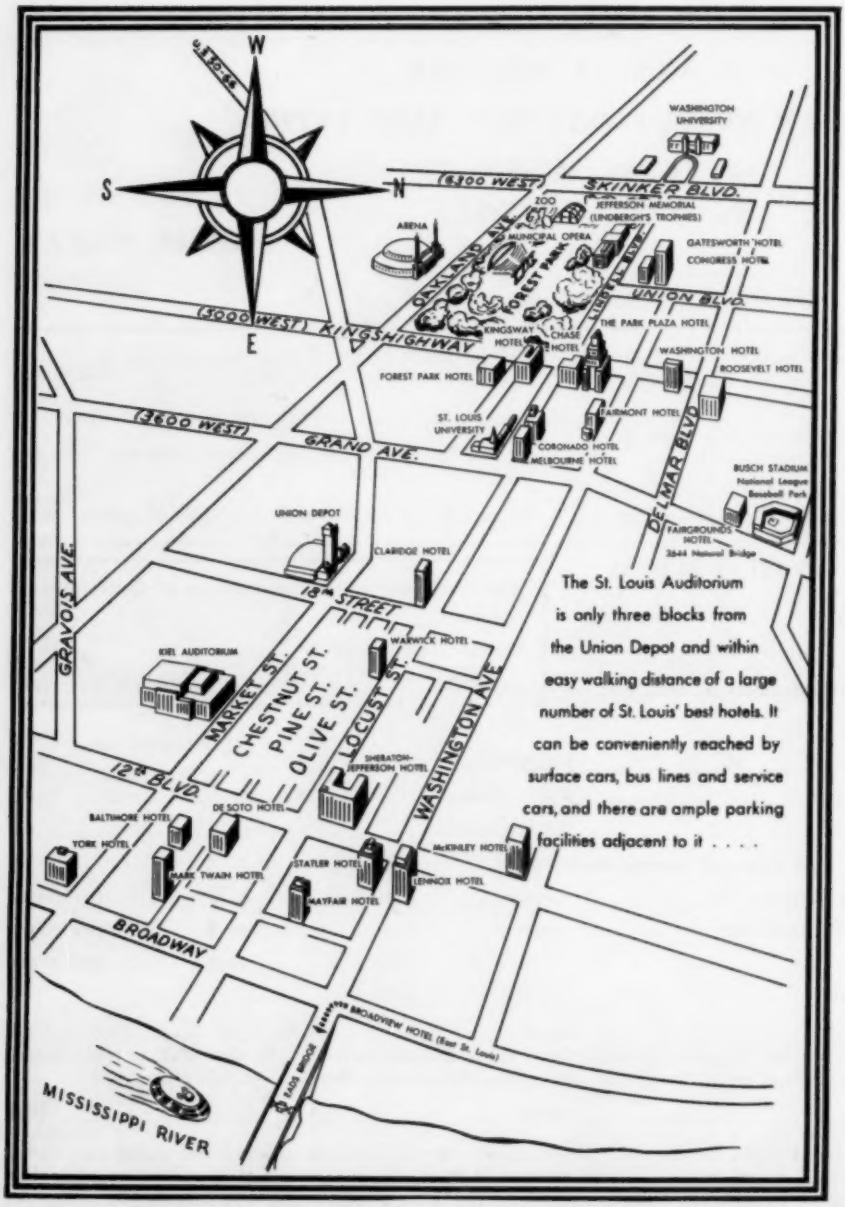
..... (Company)

..... (Street Address)

..... (City and State)

I am (please check) AHEA ..... EXHIBITOR .....

(OVER)



MAP OF ST. LOUIS SHOWING LOCATION OF THE COOPERATING HOTELS LISTED BELOW

Distance—Hotels to Auditorium

	Miles (*Approx.*)
Chase	3¾
Claridge	¾
Coronado	1¾
DeSoto	¾
Kingsway	3¾
Lennox	¾
Mark Twain	½
Mayfair	¾
Melbourne	1¾
Park Plaza	3¾
Sheraton-Jefferson	½
Statler	¾

HOTEL	FOR ONE PERSON	FOR TWO PERSONS— DOUBLE BED	FOR TWO PERSONS— TWIN BEDS	2-ROOM SUITES PARLOR & 1 BEDROOM
Chase	$ 8.50-$13.00	$12.00-$15.00	$13.00-$16.00	$23.00-$55.00
*Claridge	4.50- 8.00	6.50- 10.00	7.50- 12.00	16.00- 18.00
Coronado	7.50- 12.00	9.50- 16.00	9.50- 16.00	17.00- 40.00
*DeSoto	4.00- 6.50	6.00- 7.50	8.00- 10.00	12.50- 15.00
Kingsway	6.50- 9.00	8.50- 11.00	9.50- 12.00	12.50- 22.50
Lennox	6.50- 11.00	7.50- 11.00	11.50- 13.00	20.00- 35.00
*Mark Twain	5.50- 8.50	7.50- 10.00	9.00- 11.00	15.50- 24.00
Mayfair	6.50- 11.00	7.50- 13.00	11.00- 12.00	17.50- 25.00
*Melbourne	5.75- 7.00	7.75- 9.00	9.50- 12.00	15.00- 23.00
Park Plaza	10.00- 14.00	14.00- 16.00	14.00- 18.00	24.00- 40.00
Sheraton-Jefferson	7.35- 10.85	10.35- 13.85	12.35- 16.85	25.00- 42.85
Statler	6.50- 12.00	10.00- 14.00	11.50- 15.00	28.00- 35.00

Sales tax 2% additional.

* Hotels are fully air-conditioned except those marked with asterisk which are partially air-conditioned; rooms at or near minimum rate in these four hotels are not likely to have air conditioning.

To the future...

A young woman needs the help of those concerned with human welfare... to build and maintain a healthful future for herself and her children.

A good diet is needed before pregnancy to insure optimum growth of all tissues and adequate storage of calcium in the skeleton... and during pregnancy to prevent any undue nutrient loss from maternal tissues, and to permit storage of nutrients in the body of the growing infant. Nutritional supplements are generally neither effective nor economical substitutes for a good diet and do not provide opportunity for correction of faulty eating habits. Their use without evidence of deficiencies requires critical appraisal by obstetricians, according to conclusions of a team of scientists who studied dietary intakes of more than two thousand pregnant women, evaluating health and nutritional status of mothers and infants.

Among 404 pregnant women on marginal diets, incidence of prematurity was found to be greater among those whose nutrient intakes were lowest. Of 227 mothers whose diets were rated best, 4 per cent of the infants were premature. Of 177 mothers whose diets were rated poorest, 9.6 per cent of the infants were premature. The diets of these women were particularly low in calcium because of a low milk intake.

Four cups of milk each day during pregnancy . . . and six cups during lactation... to drink... used in food preparation . . . as cheese or ice cream . . . will provide most of the calcium needs of these reproductive periods . . . and generous quantities of high quality protein and other essential nutrients.

In planning meals for the mother-to-be, *milk and milk products are foundation foods for good eating and good health.*

The nutritional statements made in this advertisement have been reviewed by the Council on Foods and Nutrition of the American Medical Association and found consistent with current authoritative medical opinion.

Since 1915... promoting better health through nutrition, research and education

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PRESS OF
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WASHINGTON, D. C.

sweeten it with SUCARYL®...

you save all sugar's calories*

and you can't taste the difference!

In a party mood? Well, don't leave weight-watching friends off your guest list! For, with calorie-free SUCARYL on hand, you can now serve weight-watchers wonderful, fully-sweetened party desserts—and still keep the calories down. Those delectable Strawberry Tarts* above, for instance, have but 166 calories each, when sweetened with SUCARYL; if made with sugar, each would contain 310 calories. Use SUCARYL practically everyplace you'd use sugar . . . and no one will ever taste the difference.

*You'll find this recipe plus dozens of others for calorie-saving dishes and beverages in the Sucaryl recipe booklet—yours free, for the asking, at your neighborhood pharmacy.

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